

HOW TO DRIVE
LIKE A PRO p. 180

BUILD YOUR OWN
ROCK CRAWLER p. 227

2 NEW LOSIS
SEE 'EM FIRST p. 39

RADIO CONTROL car action

THE WORLD'S BEST-SELLING RC CAR MAGAZINE

10 reviews

» CARS » TRUCKS
» RC GEAR

38 REVERSING speed controls

TESTED

SCHUMACHER **Menace 21**

DURATRAX **Mini Quake**

KYOSHO **V-One-RRR**

XTM **X-Cellerator EP RTR**

GS RACING **SUT Pro**

TRINITY **Itsy Bitsy Spyder**

EASY HOW-TO
Save that
Servo!



RCX

RCX.COM

AIRAGE
MEDIA

reccaraction.com

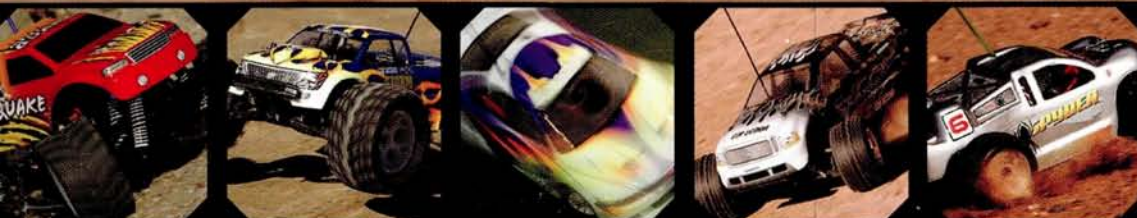
\$5.99US \$7.99CAN



02>

0 71896 47380 3

FEBRUARY 2005



» HUDY PRO SETUP SYSTEM » JR RACING XS3 PRO » NOVAK GTX
» PRO-LINE MOAB TIRES » LRP PULSAR COMPETITION 2

RADIO CONTROL car action

VOLUME 20 ■ NUMBER 2 ■ FEBRUARY 2005

C O N T E N T S

FEATURES

78 **FIRST DRIVE TRINITY ITSY BITSY SPYDER**

Trinity's new mini-machine is surprisingly fast and ready for anything with its shaft-driven 4WD system. We're the first to get a turn behind the wheel!

>> BY PETER VIEIRA

142 **REVERSING SPEED CONTROL GUIDE**

Ready to take a giant step backwards? We have more than 30 ways to shift your electric ride into reverse.

>> BY THE RC CAR ACTION TEAM

168 **REEDY TRUCK RACE OF CHAMPIONS**

We don't want to spoil the surprise, so we'll just say the winner's name rhymes with "Smilin' Dennis Leary"

>> BY JASON SAMS

180 **JOEL'S BENCH** Mastering a New Track

New track? No problem. Joel explains how to analyze a new course so you'll be able to master it more quickly, humiliate the locals and steal their trophy girl.

>> BY JOEL JOHNSON

190 **PRODUCT PROBE LRP PULSAR COMPETITION 2**

It's already the choice of world champions, but LRP improved it anyway. What? Did they have nothing to do?

>> BY MATT HIGGINS

200 **HOW TO FIX A BROKEN SERVO**

Wait! You can rescue that servo! It isn't hard, and you can use the money you save to add another year to your RC Car Action subscription!

>> BY LITO REYES

208 **PRODUCT PROBE NOVAK GTX**

You don't see "smaller" and "stronger" together very often, but Novak's GTX speed control is just that. The latest orange speedo was winning even before Novak had it in production. Will it be your next ESC?

>> BY PETER VIEIRA



COVER STARS: from top—XTM Racing's X-Cellerator in action (photographed by Pete Hall), joined by (inset, left to right) the DuraTrax Mini Quake, GS Racing SUT Pro, Kyosho V-One-RRR, Schumacher Menace 21 and Trinity Itsy Bitsy Spyder.



TRACK TESTS

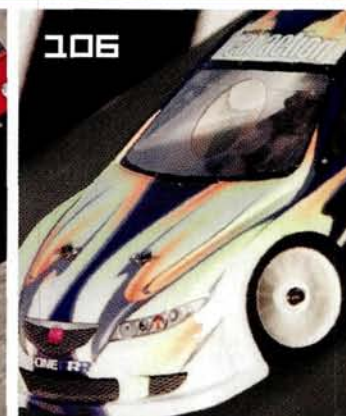
- 86 Schumacher Menace 21**
The Formula for Fun in Four Words ...
Small Truck, Big Engine >> BY CRAIG BIANCO
- 96 DuraTrax Mini Quake**
DuraTrax Monsterizes Mini-Trucking with
Rough-and-Ready RTR >> BY KEVIN HETMANSKI
- 106 Kyosho V-One-RRR**
We Drove Nitro Touring's First-Ever IFMAR
World Champion! >> BY STEVE POND
- 118 XTM Racing X-Cellerator EP RTR**
XTM Goes Electric with Racing Features,
Name-Brand Electronics and Stadium Style
>> BY CRAIG BIANCO
- 128 GS Racing SUT Pro**
GS Takes Truggies to the Next Level
>> BY JASON SAMS

COLUMNS

- 24 Starting Line** >> BY PETER VIEIRA
- 26 Readers Write**
- 39 Inside Scoop** >> BY JOHN HOWELL
- 52 Readers' Rides** >> BY PAUL ONORATO
- 60 Pit Tips** >> BY GEORGE M. GONZALEZ
>> ART BY RICHARD THOMPSON
- 68 Troubleshooting** >> BY GEORGE M. GONZALEZ
- 157 Racer News** >> BY THE RC CAR ACTION TEAM
- 218 Maxx Overdrive Maxx Thrash:**
Pro-Line Moab Tires & HD 23mm Hex Wheels
>> BY JOHN HOWELL
- 227 4x4 Testing the RC Guy Gecko** >> BY KEVIN HETMANSKI
- 235 Piston Power**
Inside the New Collari Competition Engines
>> BY STEVE POND
- 245 Body Shop Stick It to It!** >> BY JOSHUA THIEL
- 255 Product Watch** >> BY THE RC CAR ACTION TEAM
- 281 Backlot Clip-and-Save Fun for Everyone!**
>> BY PETER VIEIRA

RESOURCES

- 272 Rcstore.com**
- 276 Find It**
- 279 Customer Service Information**
- 279 Index of Advertisers**





Electric rules!

I KNOW, I KNOW; NITRO-POWER is still the "it" category, but electric is still strong—just look at the products for proof. NiMH battery technology continues to improve, with capacity now up to 3600mAh. Remember when you could get a 4000mAh pack for the Clod Buster—and it used D cells? It won't be long before we see 4000mAh packed into a sub-C! Motor technology continues to progress despite the basic limitations of rules-mandated brushed-design parameters. Just look at Trinity's D6, Orion's breakthrough "V" motors and the new Checkpoint mods. And brushless tech keeps moving forward with LRP's radical Sphere system as well as sure-to-come new designs from Novak.

And consider the vehicles. Would XTM have bothered with an electric X-Cellerator (this month's cover truck) if there wasn't a good chance they could move 'em? And the still-exploding mini-monster-truck scene is all about electric power. No one wants to run a nitro truck in the living room—the carpet would be toast! None of the manufacturers are backing off from their electric-sedan programs. Just look at Tamiya's string of TRFs, Losi's new JRX-S and Associated's TC4. All represent a big commitment to electric power. But it goes beyond racing stuff; more and more electric RTRs are popping up, including updated rides from Team Losi, and a factory-built Associated TC4 is on the way.

So, new guy, I know you're really turned on by nitro power, but take a look at the electric side before you buy!

In this issue

REVERSING SPEED CONTROL GUIDE

Wanna go backwards? We've got more than 30 models rounded up for your armchair-shopping pleasure—everything from ultra-affordable basic models to full-featured "pro" controllers that rival racing speed controls for pure performance.

HOW TO: SAVE YOUR SERVO

Wait! Don't throw that servo away! You can fix it; you have the technology. And we'll show you how. Would we steer you wrong? Ouch. That joke actually hurt.

PRODUCT PROBE: NOVAK GTX AND LRP PULSAR COMPETITION 2

Lots of gizmo action this month! We've got full reviews of Novak's newest, smallest, best racing speed control and LRP's revised version of its top-o'-the-line Pulsar Competition charger.

See you next month,

Peter Vieira

Peter Vieira
Executive Editor

EDITORIAL

Editorial Director JON CHAPPELL

Executive Editor PETER VIEIRA

Senior Technical Editor STEVE POND

Senior Editor JOHN HOWELL

Associate Editors MATT BOYD, KEVIN HETMANSKI, MATT HIGGINS, PAUL ONORATO

Managing Editor DANA DONIA

WEST COAST

Senior Editor GEORGE M. GONZALEZ

Associate Editor JASON SAMS

CONTRIBUTORS

ROB ALLGEYER, KENNY BERGSCHULTZ, JOEL JOHNSON, DAVID C. KONNEKER, BRIAN LESLIE, ELVIS MACHADO, NATHAN MILLER, ERIC QUERTEMOUS, LITO REYES, NICK SAVA, JOSHUA THIEL, RICHARD THOMPSON, RICHARD TRUJILLO, BILL ZEGERS

COPY

Copy Director LYNNE SEWELL

Senior Copyeditor PAIGE L. HAMILTON

Copyeditors SUMA KAVIRAJAN, COREY M. WEBER, ELLEN WILDE

ART/DESIGN

Creative Director BETTY K. NERO

Senior Art Director LESLIE COSTA

Associate Art Directors MIKE AMADITZ, CHRISTOPHER CASEY, VICTORIA HOWELL, JOE ULATOWSKI

Associate Promo Art Director CHRISTOPHER CHU

Staff Photographers PETE HALL, DERON NEBLETT

ADVERTISING

Advertising Director ROSS GARNICK

Account Executives ALEX CHUNG, RORY GORDON, BOB PINA

Advertising Traffic Coordinator CHRISTINE DILAURIO

Sales Administrator DARLENE ALTRO

CONSUMER MARKETING

Consumer Marketing Director WILLIAM S. CARTER

Fulfillment Manager STACEY NELSON

Product Marketing Manager JASON BONGO

CORPORATE MARKETING

Corporate Marketing Director JENNIFER WARE

Marketing Coordinator MARIE TERIO

PRODUCTION

Director of Production and Manufacturing STEPHEN R. BEST

Senior Production Manager CHRISTINE BACHMANN

Production Manager CHRISTINA MASCHKE

Senior Production Coordinator BOBBI-JO BALDWIN

Production Coordinator SHERRY MORGAN

Print Coordinator TOMLINSON S. WHEELER

INTERNET

Web Developers HOLLY HANSEN, LEO FICKS

Web Programmer JAIME TORRES

Web Assistant GAZI AHMED

PUBLISHING

Group Publishers LOUIS V. DeFRANCESCO JR., YVONNE M. DeFRANCESCO

CORPORATE

Chairman of the Board ALDO DeFRANCESCO

President and CEO LOUIS V. DeFRANCESCO JR.

Executive Vice President YVONNE M. DeFRANCESCO

Chief Financial Officer CAROL SHEPHERD



Member Audit Bureau
of Circulations



Magazine Publishers
of America

100 East Ridge, Ridgefield, CT 06877-4606 USA

RCCARACTION.COM

PRINTED IN THE USA

HOTSTUFF

[READERSWRITE]

sponsored by

TRINITY



He be Jammin'

I have subscribed to *RC Car Action* for the last four issues and want to get started in RC with an 1/8-scale RTR buggy. The Jammin' X1 looks like the one for me, but I don't have a lot of money, and the extra cost of a battery pack and charger for the shaft starter is really too much. Can I use any cheap stick pack? If I get a RadioShack pack and slow charger, I can afford it. Will these work? [email]

Matthew Ryan

Sure, they'll work fine. The only way you'll get stuck is if you drain the pack and need to recharge it while you're still out running. You won't be able to recharge it quickly. But then again, if you use the starter so much that you're killing the battery before your afternoon of RC action is up, you should be more concerned about tuning the engine than charging the starter battery.

—Pete

Losi Lust

I want to step up from the RadioShack XMODS that I got for my birthday last year. I'm in the market for a 1/10 touring car and am torn about which RTR to buy. I'm considering the Losi Triple-XS Sport because my friend has one, and I think it has good radio gear and electronics for the price. I read the review two years ago, but I can't remember what you guys said about it. Any suggestions on which 1/10 touring car I should buy? [email]

Peter Lindberg
rc10b4pete@hotmail.com

I reviewed the Triple-XS Sport in the April '03 issue. It's a great car, especially if you want an RTR with better-than-average radio gear—way better than average, in fact. Losi just updated the car, so it now includes chrome wheels, a Novak-built speed control and a Trinity motor. If it's too expensive for you, look into an Associated

TC3 RTR. The radio gear isn't as nice but, like the Losi, it is a well-equipped, race-proven car.

—Pete

It Will Fit

I bought a Kyosho Twin Force (awesome truck!) earlier this year, but I would like to buy another body for it. I'm interested in the Pro-Line Ford F-150 Supercab body. Will it

fit? I emailed Pro-Line and was told to take the truck to my local hobby store.

[email]
Jorge E.
aa2crew@msn.com

Basically, you can make any RC body fit anything with some creative drilling and careful mounting. Just place the clear shell over the chassis so it "looks right," and then mark the body-post locations and trim away any plastic that interferes with chassis parts. Given the Twin Force's chassis design, I don't think you'll have trouble mounting any popular monster truck body.

—Pete



Totally Swede

I noticed the Muppets' chef in your 1/8-scale Off-Road Worlds coverage on page 248 of the December issue. What's that about? Funny stuff. [email]

Alex
richards1008@hotmail.com

He's the Swedish chef, and the IFMAR Worlds were in Sweden. Pretty tricky, eh? You're the first guy to notice, so I sent you some RC Car Action decals.

—Pete

**WE WANT TO
HEAR
FROM
YOU!**



Email us at readerswrite@airage.com, or put the postman to work by mailing your letter to Readers Write, 100 East Ridge, Ridgefield CT 06877-4606 USA. Please include your city and state, and let us know if we may publish your email address. We can't reply to every letter and email, but we read 'em all!

Cells made in China assembled in U.S.
EPIC Motorsports, Edison, NJ

BREAUMA 2003

3000 + MAH
HI-PERFORMANCE
BATTERY PACKS AT
SPECIAL PRICING

More run time and power for your E-Maxx, Team Losi, Kyosho and Associated buggies or just about any car, truck, boat or plane that uses a stick battery pack.

Special pricing only from EPIC!
EP0030, \$59.99!



www.epicmotorsports.com



EPIC ROAR STOCK
27 Turn, 22 Awg
24° Locked Timing
Dual Magnets
Drill Balanced
Rebuildable

EP1111, ROAR Stock
EP1112, ROAR Pro Stock



www.epicmotorsports.com

Rally Looking for a Tow

Is there a way to convert the Traxxas 4-TEC into a rally racer? Is there a better Traxxas vehicle for that? I chose Traxxas because my first RC car was a T-Maxx. I'm looking to sell it and buy an electric Stampede and make a trailer to tow the 4-TEC. Do you have any suggestions on how to make a flatbed trailer? [email] Cody Thayer Nitrofanatic@aol.com

You could glue up a set of HPI rally tires, set the shocks for maximum ride height and call your 4-TEC a rally car, but it really isn't the best choice for off-roading because of its exposed belt drive. If all you want is the rally look, but you don't plan to go off-road, that's cool. If you've gotta run in the dirt, I'd go for a shaft-drive car like Tamiya's TT-01, which, by the way, you can get with Subaru Impreza WRC bodywork for true rally style. As for the trailer, that's a custom deal. Readers, can you help Cody out?

—Pete

Maybe There Is a Replacement for Displacement

I was reading the ".18 Engine Shootout" (December 2004) and have a question. If you're using the Traxxas S-Maxx as the test truck, shouldn't the truck go faster than the stock S-Maxx, even with stock gears? I have a T-Maxx myself and got it up to 41.5mph, but all of the .18 engines in the article averaged about 36.05mph. Is

this true, or am I not reading the article correctly? [email]

James D.

jamesd468@hotmail.com

Even the Traxxas guys have said they wished we had done a test run with the TRX 2.5 because they're confident it would have smoked the .18s we tested, but I think test conditions are at play here as well. Consider this: in the January issue's Revo vs. T-Maxx feature, both trucks fell short of 40mph, even though we've previously radar'd both at speeds of over 40mph. The reason for the slowdown? Weather. That's the thing with nitro; unless you're comparing cars (or trucks) side by side on the same day with the same fuel, the results aren't totally comparable.

—Pete

Mini Mag?

With all the cool new micros coming out—such as the Associated RC18T, DuraTrax Mini Quake, Trinity Mini Spyder and others—will you put out another special issue dedicated to these awesome little cars? I still don't know which one I want, so I want to see some reviews! [email] Nathan Griggs

We'll certainly have a micro-truck shootout in the future, but another special issue? Hmmmm.... We'll see!

—Pete

YOU SAID IT

"Turn-marshals can really affect the outcome of a race"

My name is Karl, and I'm 15 years old. The other week, I was at a club race and had the TQ. Everything was fine until about half a lap later, when some guy rear-ended me and made me flip over. I was thinking, "OK; I'm not that far behind. I can still catch up." But I was wrong. There was a turn-marshall literally 5 feet in front of my car, but it took him about 15 seconds to get to it and flip it over. Then, as luck would have it, about two laps later, I flipped over again while trying to catch up to the leader, right in front of that same turn-marshall, and it took him just as long to flip my car over as the first time. In the end, I finished third and was very disappointed, but the point I'm trying to make is that a turn-marshall can really affect the outcome of a race and should take the job more seriously. When I turn-marshall, I get to the cars as fast as I can because I don't want a whole bunch of people screaming at me. I wish that's how everyone else was. [email] Karl Osaki

I used to always be down on the corner marshals, but then I thought, "Hmmm, maybe I should crash less." The funny thing about corner marshals is that they're the guys who just raced before you; you'd think they would marshal the cars as quickly as they would like their own cars to be marshaled. Maybe it's time for the race director to explain the golden rules of turn-marshaling at the next drivers' meeting (watch your corner, not the race; treat every car like it's the leader; the last car in the crash is the last car back on the track). Best advice? Don't crash. —Pete ■



Every month, "Readers Write" sponsor Team Trinity awards the "You said it" letter writer the Reference body of his choice. This is the Reference Stratus-Y.



Got a hot scoop? Send it to johnh@airage.com!

BY JOHN HOWELL

insidescoop

THE LATEST STUFF • SPY SHOTS • INSIDER INFO

Team Losi

Triple-XT Adam Drake 2

We only had room for a teaser in our last issue, but this month, we have plenty of room for a closer look at Team Losi's new XXX-NT gas truck. It's loaded with upgrades designed to help it withstand all the punishment a one-hour gas Main can throw its way. Improved materials and molded parts are used for greater strength and durability, and the shock towers, rear pivot, suspension arms and battery box have all been strengthened. Additional features include:

- >> New alloyed-steel front axles
- >> Interchangeable front and rear wheels
- >> Hard-coated, one-piece aluminum slipper/top shaft
- >> Kevlar spur gear
- >> Heavy-duty differential thrust assembly
- >> Low-slung, hard-anodized, rear-exhaust header and tuned pipe
- >> Titanium-nitride hingepins
- >> Aluminum shock-adjustment nuts

Team Losi; distributed by Horizon Hobby Inc. (800) 338-4639;
teamlosi.com; horizonhobby.com.



The truck includes standard rear axles as well as these trick quick-release units. Also cool: the wheels can all be used on the front or the rear.



In addition to being held by their mounts, the inboard hingepins are held by setscrews. Not ... gonna ... budge.



The truck has Losi's Variable Length Arms (VLA) suspension, and the stub axles are made of a stronger steel alloy.

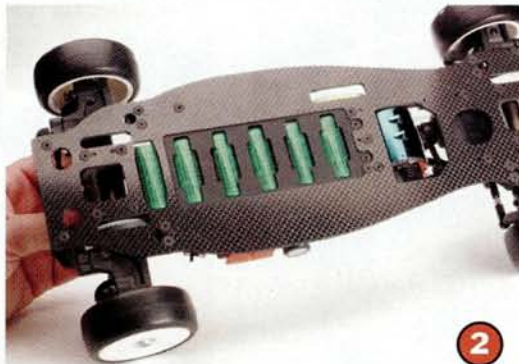


Team Losi JRX-S

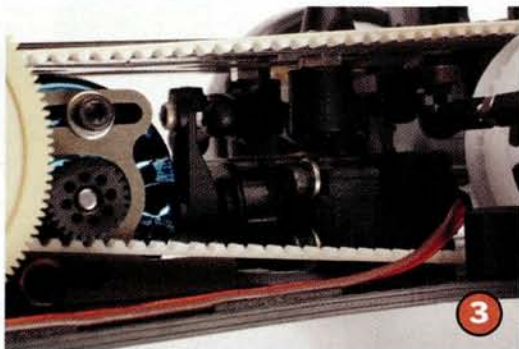
Carpet or pavement? Don't pigeonhole the JRX-S. According to Team Losi, "This serious racer can quickly and easily be changed from indoor to outdoor setups in a matter of minutes." The all-new short-arm suspension, centered battery and new top-fill shocks are the most obvious differences between the new car and the Triple-XS, which lends no parts to this car. Team Losi; distributed by Horizon Hobby Inc. (800) 338-4639; teamlosi.com; horizonhobby.com.



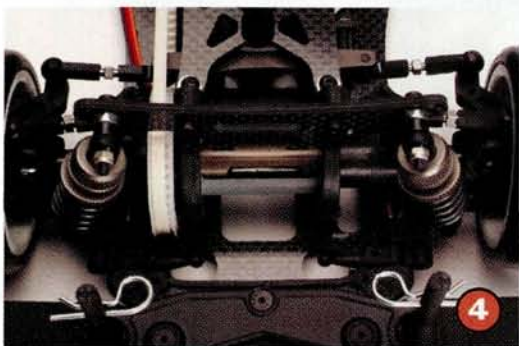
1. The JRX-S is the first Losi car to include top-fill, bladder-equipped shocks. Losi chose the design for its superior rebound performance.



2. Straps? Tape? Try a pair of screws. The battery is installed through a trap door underneath the chassis.



3. The JRX-S is tightly packaged. The reversed steering servo swings a pair of bellcranks suspended from the upper deck.



4. The diffs are extra-wide to accommodate the car's short-arm suspension configuration, and the diffs' positions can be adjusted fore/aft and up/down to alter CG and belt tension.

>>>PIT BOX

Trinity universal motor fan

Trinity's accessory fan for its Cobalt motor can now be fitted to most other standard-endbell motors. The universal fan comes with special heat sinks that lift it above the motor.

Trinity Products Inc. (732) 635-1600; teamtrinity.com.



sportwerks Touring car hauler & transmitter bags

SportWerks' new line of touring car and transmitter bags are made of black, high-quality, rip-stop nylon and are trimmed in blue. They have heavy-duty zippers, and the transmitter bag has extra protective padding and features two expandable pouches for crystal or charger storage.

Sportwerks; distributed by Horizon Hobby Inc. (800) 338-4639; horizonhobby.com.





Tamiya knight hauler metallic special edition

If the standard Knight Hauler isn't gorgeous enough for you, this chrome model is bound to hit the spot. All the standard Knight Hauler features are in place and wrapped in a super-shiny shell. Sunglasses not included.

Tamiya America Inc. (800) 826-4922; tamiyausa.com.



Pro-Line Racing Premium Blend CA

Pro-Line's new-formula tire glue comes in a user-friendly clog-free tube applicator, and Pro-Line says that very little, if any, cleaning of the rim and tire bead is needed before the CA is applied. The new glue is available in thick and thin viscosities.

Pro-Line (909) 849-9781;
pro-lineracing.com.



TRI30010
Jolly Roger Pinion
Gear Holder



TRI70004
Pit/grave Cover
2'x4'

TRI30011
Jian "The gadget" Sanguis
Action Figure

TRI0016, M
TRI0019, L
TRI0020, XL
TRI0021, XXL
Deadman's Shroud

TRI70001
Deadman's
duffle

TRI70002
3 Casket hauler

TRI70003
Radio-Active
Sack

Available Through
Shopatron

www.teamtrinity.com

SKULLZZ™

R/C

Fun Time Technologies The glowTrue

This new glow-igniter system provides reliable glow-plug heating for much longer than "sub-C" battery-powered igniters. GlowTrue operates on 4 AA cells, and its battery and glow-plug continuity indicators alert you to any problems before you attempt to start your engine.

Fun Time Technologies (260) 341-1327; glowtrue.com.



Trinity Nitro toolbox

This comes with everything you need to start and tune your new nitro engine. The kit includes: a fuel bottle; glow starter; glow-starter charger; standard screwdriver; Phillips screwdriver; glow-plug wrench; and 4-way wrench.

Trinity Products Inc. (732) 635-1600; teamtrinity.com.

EPIC

INTENSE
Machine Wound Super Modified

Machine Wound Armature
High Torque Armature Blank
High Torque Double Winds
Long Wear P-94 Style Brushes
High Power FB-9 Magnets
Dual Ball Bearings
Adjustable Timing
Racer Performance
Play Price

- EP1115, 10 Turn Double, Excellent For Touring Cars, 1/12-1/10th On-Road/Oval Racing
- EP1116, 11 Turn Double, Excellent For Touring Cars, On-Road, 4WD Off-Road Racing
- EP1117, 12 Turn Double, Excellent For 2WD & 4WD Off-Road Racing
- EP1118, 13 Turn Double, Excellent for 2WD Off-Road Racing
- EP1119, 14 Turn Double, Excellent For All Street Racing 2WD & 4WD
- EP1120, 15 Turn Double, Excellent For 1/10th Racing Trucks
- EP1121, 16 Turn Double, Excellent For 1/10th Racing Trucks
- EP1122, 19 Turn Single, Excellent For 19 Turn Spec Racing, Trucks, Long Run Times

Available Through
Shopatron



\$39.99

www.epicmotorsports.com

Pro-Line Racing crowd pleazer 2.0 body for Mugen MBX-5 ProSpec

The Crowd Pleazer look is now available for the Mugen MBX-5 ProSpec. As always, window masks and overspray film are included. Pro-Line (909) 849-9781; pro-lineracing.com.



POWER ZONE

Tsais dual exhaust for Revo

Tsais' unique, dual, rear exhaust pipe features two functional tips that will be protected by the rear bumper when the truck pulls a wheelie, and according to Tsais, a distinct sound will match its outstanding looks.

Tsais; distributed by RCHub.com (816) 224-2070; tsais.com.



Rossi Engines Adjustable tuned pipes

According to Rossi, its new adjustable pipe will allow you to tune your exhaust system precisely for horsepower gains of as much as 20 percent. The new tuned pipe can be finely adjusted over a 20mm range.

Rossi; distributed by Trinity Products Inc. (732) 635-1600; teamtrinity.com.

HPI Racing Mustang GTR

Ford's red-hot new Mustang is captured in GTR race mode and is ready to be mounted on your nitro sedan. A molded, dual-element wing, precut decals, and overspray film are included. Note the deep grill and front valance—tricky stuff to mold, but HPI nailed it!

HPI Racing (949) 753-1099; hpiracing.com.



HPI Racing stage D drift conversion for Nitro RS4 3

Looking to get sideways? HPI's drift kit has everything you need to convert your Nitro RS4 3 for drifting. The kit includes drift tires, a mid-engine chassis and upper deck for drift-specific weight distribution, new driveshafts and a custom header for the mid-engine configuration. HPI Racing (949) 753-1099; hpiracing.com.



New Era Models Nitro chopper chrome

New Era's eye-popping nitro chopper has a few upgrades for '05. The Maltese cross head, fuel tank, handlebar grips and gas cap are all machined aluminum, and a 2-speed transmission is standard. New Era Models (603) 888-4453; neweramodels.com.



Pro-Line Racing chevy silverado HD

The new Chevy Silverado faithfully re-creates the full-size off-roader and is complete with extra cab styling and the fender flares that give it a rugged style and lots of attitude. The body comes with window mask, overspray film and a detailed decal sheet. "HD" stands for "Heavy Duty," so Pro-Line pulls the body out of 0.060-inch Lexan. Tough stuff! Pro-Line (909) 849-9781; pro-lineracing.com.



Futaba MC800C V2 ESC

The MC800C V2 is Futaba's new top-of-the-line, forward-only ESC. It's 100-percent digital with three adjustable modes and Futaba's Power Control 2 digital motor management. The MC800C V2 comes set from the factory for on-road racing with a three-wire setup and a Schottky diode, and there's a comprehensive user guide. Futaba; distributed exclusively by Great Planes Model Distributors Co. (800) 682-8948; futaba-rc.com.

POWER ZONE

Trinity Monster RTR .27

This .27 RTR hop-up engine is a direct fit for the HPI Savage, GS Racing SUT, Power Racing Raptor and Trinity's own Spyder. According to Trinity, it will fit wherever a .21 pull-start engine is used. Trinity Products Inc. (732) 635-1600; teamtrinity.com.



Novak Electronics servo booster

The Super Booster is designed for use in nitro-powered RC cars and trucks. The unit provides stable voltage over the duration of the receiver battery-pack charge. The device also allows you to use higher-voltage, larger-capacity Li-poly packs or 6-cell NiMH or Ni-Cd packs. The input voltage can be as high as 7.8 volts; the Super Booster will output a constant 6 volts as long as the battery is capable of providing that output. Novak Electronics Inc. (949) 833-8873; teamnovak.com. ■

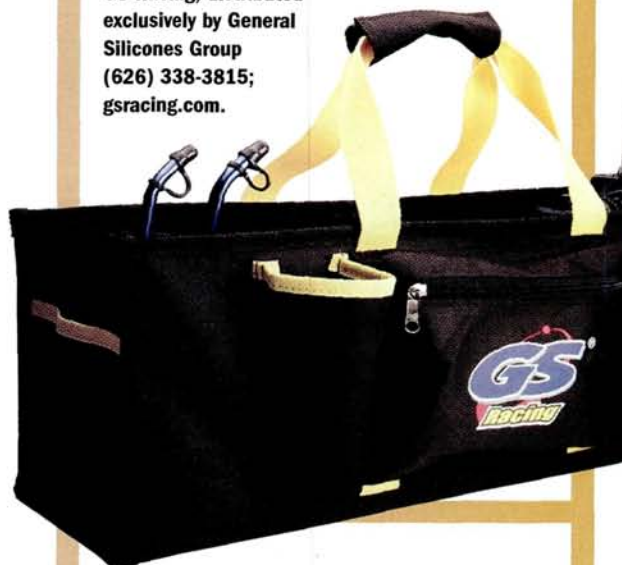


>>>PIT BOX

GS Racing Pit caddy and Pit pad

The Pit Caddy will hold all the items you need for ultra-efficient pit stops; the Pit Pads are perfect for covering your workbench and keeping all your parts in place.

GS Racing; distributed exclusively by General Silicones Group (626) 338-3815; gsracing.com.



Powers Japan PJ series tires

These belted slicks are for high-level sedan competition, and according to Powers Japan, the tires offer "an unsurpassed blend of traction and durability." Sounds good to us.

Powers Japan; distributed by Schumacher USA (813) 889-9691; racing-cars.com; powers-international.com.



YOUR BEST BUILDS

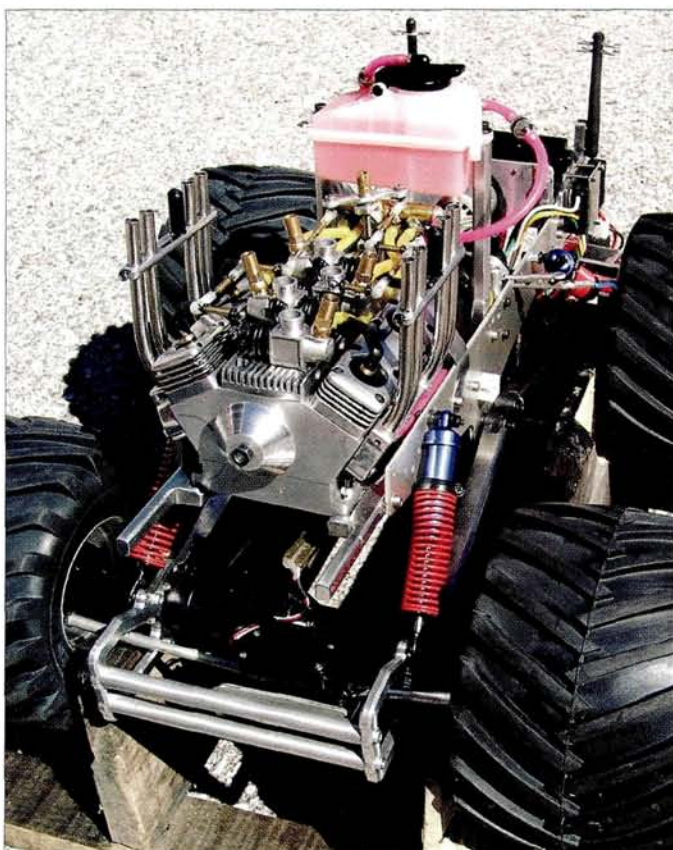


Jerry van Zant Jr. > Stockton, CA
Team Associated Nitro TC3

When Jerry bought this used Nitro TC3, it was in fairly bad shape with its thrashed body, worn tires and a chassis covered with dirt and other debris. With a little work and some new parts, he restored this old beat-up touring car to its former glory. After a thorough chassis cleaning and the addition of a new HPI Saleen S7 body with HPI tires and Hot Works wheels, this car is now ready for action.

Morris Kumura > Kaneohe, HI
Custom Sand Rail

With so many RTRs on the market, we rarely see custom-made submissions to "Readers' Rides." When Morris sent us pictures of this hot-looking Sand Rail, we couldn't wait to put it in the magazine. Its frame and suspension parts are made of 316 stainless steel, and the rest of the car is 7075 aluminum. Morris installed Associated front hubs and shocks, a Tamiya Bruiser's rear axle and an HPI 2-speed tranny. A Brat .21 engine fitted with an O.S. carb and CVEC pipe provides tons of power for throwing sick sand roosts.



**reader's ride
 OF THE MONTH**

John Deckard > Bedford, IN
4-cylinder Kyosho Mad Force

Having built full-size show cars in the past, John thought it would be cool to build an RC show truck unlike any other. He designed and machined the truck's 4-cylinder engine. Its pistons, sleeves and cranks are from various DuraTrax .12 engines. A Kyosho Mad Force had the perfect chassis for his creation, and he tells us that it sounds incredible when cruising around. John thanks Hudson's Photo & Hobby for taking the pictures of his truck.

[READERS' RIDES]

John D'Agostino > Homer Glen, IL

Tamiya TXT-1

John had a lot of fun bashing around with his Tamiya TXT-1 in stock form, but he decided to transform it into a powerful rock-crawling machine. First, he narrowed the stock wheels and custom-cut a new tread pattern into the tires for added grip. The front and rear diffs were locked with J-B Weld, and he installed 9T pinion gears to gear down the truck. Relocating the steering servos to the top of the axles and removing the stock skidplates increased the truck's ground clearance. A Futaba Magnum Jr. radio controls a Novak Super Rooster ESC and a Hitec high-torque steering servo. An HPI Jeep Wrangler Rubicon body adds a realistic touch to the project.



Serge Goulet > Geraldton, Ontario, Canada

Traxxas T-Maxx 2.5

Beneath this Pro-Line Ford F-350 SuperDuty body lies a fully hopped-up Traxxas T-Maxx. Serge used aluminum bulkheads and chassis braces from American CNC Machining, and he removed the blue anodizing from the stock chassis plate so it would match the new parts. The flatbed is loaded with parts from RPM, a Traxxas forward-only conversion, Big Bore shocks and Trinity's black springs. He installed a Hitec HS 645MG servo to turn the HPI Savage tires and wheels.

POWER UP YOUR RTR!

#700 Reedy "Rated-X" Sport Pack, GP 3300 cells

ONLY
\$64.99

Suggested
Retail Price

Reedy "Spec 19 Quad-Mag Motor.

Step up the power of your RTR with Reedy's Quad-Magnet "Spec 19" Motor! A great choice for the B4 RTR, the TC3 RTR, or any Ready-to-Run electric with a speed control rated for a 19-turn or less motor.

#513 Reedy Spec 19"Quad-Mag" Motor



Reedy's "Rated-X" Matched Sport Packs. Fully assembled in clear tubes so you can see the matching info right on the label of each cell. Don't settle for "mystery" cells in your sport packs, get Reedy's "X-Rated" packs and see the power you've been missing!

Reedy Ni-MH Receiver Packs for Nitro Cars and Trucks.

Reedy receiver packs give you the long-lasting, reliable power needed for nitro racing, and have a great low price that makes them your BEST choice!



#615 Reedy Ni-MH Receiver Pack, (Hump style for RC10GT, Monster GT, Etc.)

#614 Reedy Ni-MH Receiver pack, (Flat style for Nitro TC3, etc.)



#699 Reedy "Rated-X" Sport Pack, Panasonic 3000 cells

ONLY
\$59.99

Suggested
Retail Price

Murray Harris > West Valley City, UT

Traxxas Revo

Murray could not wait to get his hands on a Traxxas Revo. Because its performance was great right out of the box, he made minor mods. He installed a JR XS3 radio system and painted a new body with Pactra Faskolor paints and applied Pro-Line FlipSide internal graphics.



Ken Hall > Castaic, CA

Team Losi Mini-T

After reading "Mini-T Madness" in the August issue of *RC Car Action*, Ken was inspired to build his own modified Mini-T. He dumped the stock motor and other electronics for a Losi Sport Speed motor, a Novak Spy reversible ESC, a Losi NiMH battery pack, a Futaba radio and a Hitec HS-81MG steering servo. He also added Team Losi fluid-filled shocks and springs, a custom-painted Team Losi H₂O body and Trinity Mini Monster tires and wheels to complete his very cool pint-size ride. ■



SEE YOUR RIDE IN READERS' RIDES!

We want to see what you're driving! Email your 300dpi TIFF or JPEG images to readersrides@airage.com, or send color prints (no Polaroids, please) to Readers' Rides, 100 East Ridge, Ridgefield CT 06877-4606 USA. Be sure to write your name, address and phone number on the back of each photo. Submissions will not be returned; we keep them to stick on the fridge.

Mini-MAX

Reedy Hop-Ups for Micros!

ONLY

\$42.99 Suggested Retail Price



ONLY

\$44.99 Suggested Retail Price



Reedy Mini-Max Modified Motor.

Seriously turn up the heat in your micro with the Reedy Mini-Max Mod Motor. Big time features like ball bearings and replaceable brushes are shrunk down to the popular 280-size to fit most 1:18 vehicles, especially the RC18T.

#290 Reedy Mini-Max Modified Motor

Reedy Mini-Max High-Voltage 1100 Ni-Mh Racing Battery Pack.

Higher voltage means more power and that's just what you get with Reedy's new Mini-Max 1100s. Featuring much higher voltage output than stock battery packs the Mini-Max HV 1100 pack is the ticket to making your micro car rip up the road. Comes completely factory assembled with connector and fits directly into the RC18T! #616 Reedy Mini-Max 1100 Ni-Mh Battery Pack

www.rc10.com/reedy

REEDY

A Division of Associated Electrics
3585 Cadillac Ave. Costa Mesa, CA 92626



Super-secure Revo stinger

The Revo's silicone exhaust tip slips off too easily, so I helped it stay put by flaring the end of the exhaust with the round shank of a screwdriver. I inserted the shank into the pipe, pulled it against the edge of the stinger and then rotated it around the opening. I cinched the extension down with two zip-ties, and now I won't have to search for a lost exhaust extension again.



YOUR TIP

Andrew Peterson
> San Luis Obispo, CA

Gator aid

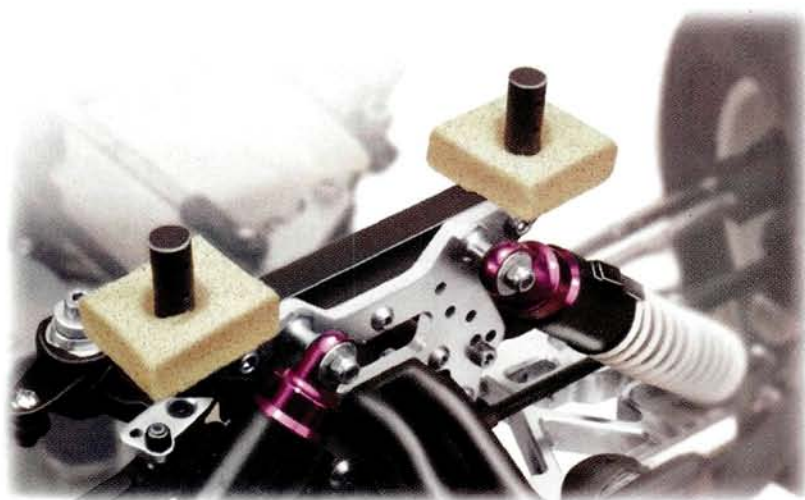
Andrew uses Gatorade bottle caps to store small parts and screws when he wrenches on his cars. The wide-mouth caps are the perfect size, and since they come in several colors, it's easy to organize parts in different caps and quickly find what you need. Wash the caps before you use them.



YOUR TIP

Chris Stephens > Effingham, IL
Better battery location

Chris sent in this tip for Traxxas Sport Maxx and Stadium Maxx truck owners who use rechargeable 5-cell packs. To help offset the weight at the rear of the truck, move the battery pack to where the front differential would be on a T-Maxx, and use a zip-tie to hold it in place. The change in weight distribution will help the truck jump more level, and it also lowers the truck's center of gravity so there will be fewer rollovers.



Body-mount cushions

Installing foam cushions on the body posts will protect the body during crashes. It will also make your car or truck more quiet when going through the rough stuff because the body won't rattle. Novak speed controls include a foam packing that works perfectly. Cut the foam into four small $\frac{1}{2} \times \frac{1}{2}$ -inch squares, and then make a hole in the centers so you can slide them over the body posts.





YOUR TIP

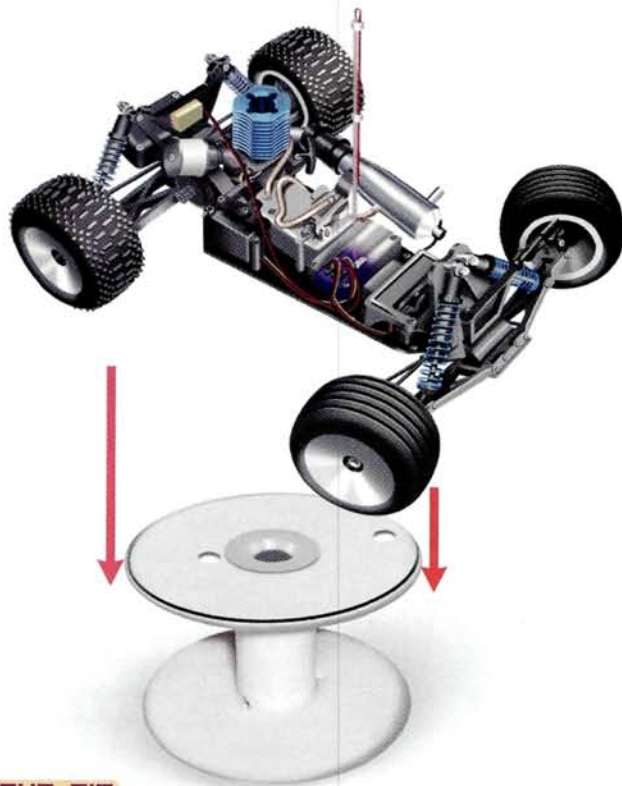
Daniel Carboni > San Mateo, CA
Zip-tie preload spacers

Zip-ties make great preload spacers if you don't have enough clip-on spacers to properly adjust the preload on your shocks. Simply attach zip-ties around the top portion of the shock just above the spring retainer. Install the preload clips below the zip-tie to fine-tune your vehicle's ride height.



Hex leverage

If your hex drivers have flat-sided handles, an open-end wrench can give you extra leverage to loosen stubborn screws. To avoid damaging the driver-handle's anodized finish, wrap a piece of electrical tape over the handle where the wrench jaws will grab it.



YOUR TIP

Spool stands

Joseph Gallo > Brooklyn, NY

Empty wire spools make excellent car stands. Ask an electrician to give you empty spools that he doesn't need. Joe says he uses several spools of various sizes to accommodate his different vehicles.



I'm glovin' it

To keep your hands clean while wrenching, painting bodies and gluing tires, wear latex gloves just like the full-scale auto mechanics do. Latex gloves are available at most hardware stores, and five bucks will get you approximately 25 pairs of gloves. ■



WE WANT YOUR TIPS!

If we publish your tip, you'll win a 6-month subscription (or extension) and a chance to win the "Tip of the Year" grand prize: an OFNA RTR. Email your tips to GeorgeG@airage.com. Include a photo or scan a sketch if you can. Snail mail? Write to Pit Tips, 100 East Ridge, Ridgefield CT 06877-4606 USA. Be sure to write your name, address, and phone number on each tip you submit.

CLICK TRIP
rccaraction.com
» More Pit Tips online!



We screen all Pit Tips for functionality, feasibility and safety but do not test them all. RC Car Action is not responsible if you mess up your gear or yourself by using the tips given here. If you aren't comfortable following any tip we show—DON'T!

TROUBLESHOOTING

BY GEORGE M. GONZALEZ

YOU'VE GOT PROBLEMS > WE'VE GOT FIXES



Above: the red spacers included with the number 2 rockers lengthen the pushrods approximately 10mm to provide the proper suspension travel. If you don't install the spacers, the rods will be too short, and the truck will bottom out easily.

Right: lengthen the shocks by unthreading the rod ends about 3mm. A shock length of 90mm is just about right when using T-Maxx-size wheels and tires.

Low-rider Revo

Q I have a Traxxas Revo that's mostly stock, but I installed the number 2 progressive rockers and Pro-Line Bow Tie tires mounted on standard offset Velocity rims. The truck runs great except it bottoms out when landing off jumps—even small ones. I filled all 4 shocks with heavier fluid (60WT), but the truck still bottoms out. The rockers came with 8, red-anodized aluminum spacers, but I could not figure out what they are for. Do I need stiffer springs? [email] Mike Santos

A The red spacers included with the optional number 2 rockers will make the suspension pushrods 10mm longer, and that sets up the correct suspension geometry for those rockers. Unthread the molded rod ends from each pushrod, slide a spacer over each threaded end, and then thread the rod ends back into place.

In addition to filling the shocks with heavier fluid, you'll probably have to install stiffer shock springs if the stock springs require exaggerated preload adjustments to provide the correct ride height. Install green dot (20 lb./in.) springs in front and black dot (25.1 lb./in.) springs in the rear.

The Revo suspension is designed to use larger wheels and tires such as the stock set and Pro-Line's 40 series. You may also have to lengthen the shocks to accommodate the smaller wheels and tires you are using. Lengthen the shocks by unthreading the shock rod ends slightly. The shocks are built with an 87mm center-to-center distance between the center of the pivot balls installed in the shock caps and rod ends; lengthen them to 90mm. These small tweaks should prevent your truck from bottoming out and improve its overall handling.



REAL PERFORMANCE PRODUCTS!

T-Maxx/2.5-Maxx Steel Top Shaft

NEW



This precision machined **hardened** steel top shaft will fit all T-Maxx. Includes oversize ball bearing. RRP 8525

T-Maxx/2.5-Maxx FORWARD ONLY Steel Gear Kit

NEW



This kit contains a 26T **hardened** steel output gear, a forward drive hub adaptor, steel spacer and pin. RRP 8586. **Hardened** aluminum version RRP 8585.

T-Maxx/2.5-Maxx Hardened Forward Primary Gear

Precision machined from solid steel and then **hardened**. RRP 8529
Hardened aluminum version RRP 8528.

NEW

www.robinsonracing.com

T-Maxx/2.5-Maxx Forward Primary and Reverse Gears

NEW



This kit contains a precision machined **hardened** steel primary forward gear, a **hardened** aluminum reverse gear and pin. RRP 8521

T-Maxx/2.5-Maxx Primary Reverse Gear

This gear is precision machined from solid aluminum and **hardened**. Includes pin. RRP 8522

NEW

MAKE NO COMPROMISES!

T/E-Maxx/2.5-Maxx Accessory Spurs



A wide range of spurs fit our Double-Disc Slipper Kits. Choose from machined Super-Tough plastic spurs in 66, 68, 70, 72, 74 and 76T sizes, RRP 82XX, or CNC machined steel spurs available in 65, 72 and 76T sizes, RRP 83XX. Small Clutch Plate/Gear Adaptor fits 65 thru 70T spurs. Large Clutch Plate/Gear Adaptor fits 72 thru 76T spurs.

T-Maxx/2.5-Maxx Lightened Spur And Double-Disc™ Slipper Kit



RRP's **NEW** line of Lightened Spur and Double-Disc Slipper Kits for Traxxas Nitro and T/E-Maxx/2.5-Maxx trucks are designed to improve performance and increase reliability. This combo incorporates a machined steel or Super-Tough plastic spur, a Vented Aluminum Clutch-Plate/Gear Adaptor, 2 Slipper Pads and 2 Plates to deliver the adjustability you need and the increased performance that you demand. **Complete Slipper Kits** are available in the following sizes: RRP 8166 Slipper Kit with 66T Super-Tough plastic spur (Stock Size) for E-Maxx RRP 8172 Slipper Kit with 72T Super-Tough plastic spur for Traxxas Nitro RRP 8465 Slipper Kit with 65T Steel Spur for Traxxas Nitro RRP 8472 Slipper Kit with 72T Steel Spur (Stock Size) for T-Maxx Spurs, Clutch-Plate/Gear Adaptor and Slipper Pads also sold separately.

sponsored by

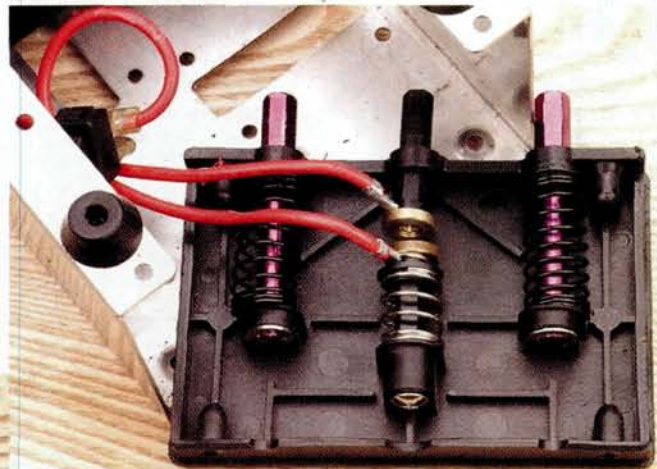


Tough starter box

Q I bought an OFNA stainless-steel starter box to crank over my nitro touring car. The starter-box motor has tons of torque, but it takes a great deal of effort to push down on the car to engage the starter wheel. To avoid crushing the body, I have to push hard on the glow starter just to get the engine started. Is there any way to adjust the starter box's spring tension?

Clark Biltmore
Trenton, NJ

A The starting-platform springs are very stiff so that the box can handle the weight of 1/8-scale vehicles. That's why you're having a tough time starting your 1/10-scale touring car. You can't adjust the spring tension, but you can always install softer springs. Replace the stock springs with 1/10-scale off-road-buggy front springs from Team Associated or Team Losi. Just remove the starting platform from the starter box, and install the softer springs.



Above: remove the starting platform from the starter box, and then remove the two longer springs. You'll probably have to remove a couple of E-clips to get to the springs.

Left: to make starting your engine easier, replace your starter box's stiff springs with lighter off-road buggy front springs. Losi and Associated springs work perfectly.

T/E-Maxx/2.5-Maxx Steel Diff Gear Set



T/E-Maxx/2.5-Maxx differential gear set, includes: 1 beveled pinion gear, 1 beveled spur gear, 4 re-usable stainless steel phillips head screws, 1 tube Associated Black Grease, and a shim kit for spider gears with 10 .003" shims. 2 sets needed per truck. RRP 8590

T-Maxx/2.5-Maxx Aluminum High Performance Brake Kit



New, lightweight aluminum high performance brake kit, includes bigger, more aggressive brake pads and steel backing plates. One piece vented rotor minimizes side-to-side wobble. Also fits newer T-Maxx. RRP 8562 Older style half shafts use Brake Kit RRP 8560.

DON'T SETTLE FOR SECOND!



www.robinsonracing.com

T-Maxx Vented Flywheels



Aluminum vented flywheels move air over clutch bell, improving performance and cooling. RRP 8551 Blue, RRP 8550 Natural Silver
NEW 2.5-Maxx Vented Flywheel, Blue Only RRP 8552.

T/E-Maxx/2.5-Maxx Replacement Pinion



This precision machined steel pinion fits RRP 8590 Diff Gear. RRP 8591

T-Maxx/2.5-Maxx Hardened Steel Clutchbells



CNC Machined from solid steel these bells are built to last. They take the 5x11 bearing (NOT included). Available in 19T, RRP 8119, 20T RRP 8120, 21T RRP 8121 and 23T RRP 8123.

ROBINSON RACING PRODUCTS

4968 Meadow View Drive · Mariposa, CA 95338 · Voice 209.966.2465 · Fax 209.966.5937

[TROUBLESHOOTING]

Doesn't start

Q My Monster GT doesn't run at all; the engine won't start. The glow plug works, and fuel is getting to the carb, but when I try to start the engine, it just makes a popping sound, and nothing happens. I bought a new Picco 26 engine, but it would be great if we could get the old one to work, too. [email]
Ross

A If your glow plug is working and fuel is reaching the carb, the engine should fire up unless the high-speed and low-speed needles are completely out of tune. Reset the needles to the factory settings and try again. Close the high-speed needle all the way by turning it clockwise until it stops. Don't sock it down; just tighten it until you feel a little resistance. Next, turn the high-speed needle counterclockwise $2\frac{1}{2}$ turns. The low-speed needle should be flush with the carburetor base or opened $6\frac{1}{2}$ turns from fully closed. This should be a good base setting. The engine will need additional tuning to get it singing as it should, but you'll be able to get it started.

Before you fire up the engine, recharge your glow starter and check the glow plug to make sure that the element glows bright orange. Give the fuel line a once-over to make sure that it is in good condition. Next, fill the fuel tank and squeeze the primer bulb to send fuel to the carb. Give the pull-starter a few yanks, or use a cordless drill to crank the engine over. It should start right up. If the engine doesn't start or runs only for a few minutes before it stalls, it probably needs to be rebuilt.



If fuel is reaching the carb and your glow plug is good, the engine should fire up unless the high- and low-speed needles are completely out of tune. Reset the high-speed needle to its factory setting ($2\frac{1}{2}$ turns open from fully closed).



Reset the low-speed needle to its factory setting ($6\frac{1}{2}$ turns open from fully closed). If the engine doesn't run after you've made these adjustments, there's a good chance that it needs a rebuild.

RC10-GT Steel Combo



Precision machined from solid steel, then hardened, this 65T spur and 15T bell combo will last and last. RRP 2365

RC10-GT Hardened Steel Idler Gear



Cut from solid steel stock, this RC10-GT gear is lightened and hardened for super quiet precision and extra long life. Black tranny grease included. RRP 2213

Associated Titanium Stealth Top Shaft



CNC Machined from solid titanium, this super hard, super light top shaft will fit any Stealth transmission. RRP 1512.

www.robinsonracing.com

RC-10GT 32 Pitch Spurs



Precision machined from heat-resistant, super tough plastic, these spurs mesh flawlessly with our Clutchbells. Available in 63T thru 67T, RRP 2263 - RRP 2267.

Hardened Diff Gear



Hard anodized, precision CNC machined aluminum diff gear. RRP 1513 RC10-GT

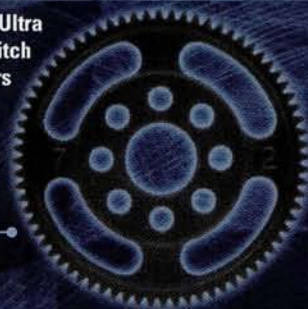
RC-10GT Hardened Steel Clutchbells



These steel Clutch Bells are CNC machined from solid steel then the teeth are machined on. This makes the part stronger with less gear "run out". Available in 14T thru 20T, 22T and 24T. RRP 22XX

DON'T SETTLE FOR SECOND!

TC3 Ultra 48 Pitch Spurs



Precision machined from heat-resistant plastic, these spurs mesh flawlessly with our pinions. Available in even numbers from 70T thru 80T, RRP 1670 - RRP 1680.



sponsored by

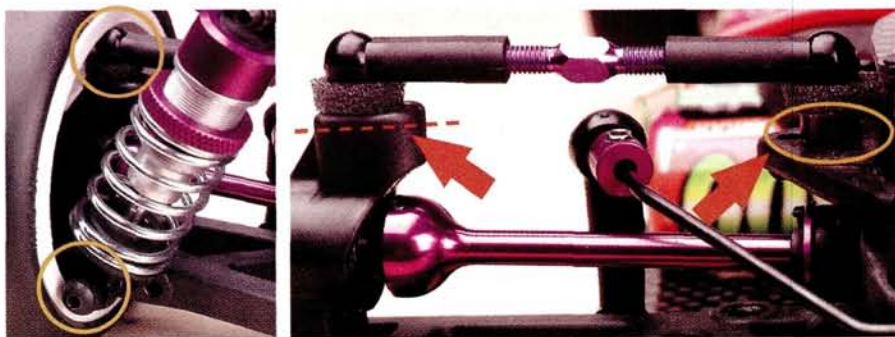
RRP
ROBINSON RACING PRODUCTS

Wheels Don't Fit

Q I have an HPI RS4 Pro 4. It doesn't come with wheels and tires, so the guy at the shop sold me a set of mounted Take-Offs, but they rub the upper linkage and the shock ends. I can't space the wheel out to fix it. Should I move the linkage and shock to the inside holes? [email]

David Leslie

A Moving the upper linkage will change the car's roll center, and the shorter camber link will probably take away a little traction. Moving the shock in will "soften" the rear suspension slightly, and that should add traction. If you really want to use the outer camber-link position, you can shave a millimeter off the top of the hub carrier and install a shorter spacer under the inboard ball stud to compensate. The shock mount is a tougher problem; I think moving it in one hole is your only option.



Trimming the top of the hub carrier by 1mm will cure the rim-rub (left). To preserve the suspension geometry, install a 1mm-shorter spacer under the inboard ball stud.

TOOLBOX

Power Racing Finger Saver clutch shoe tool



Power Racing's hardened steel tool makes installing clutch shoes less of a pain—literally. With it, you can install your clutch springs in less than 2 minutes and without stabbing yourself with your screwdriver. The tool slides over the pilot shaft, and when you turn the handle counterclockwise, it locks the clutch-shoe spring into position on the clutch nut.

Power Racing Finger Saver clutch installation tool—1320; \$20

Power Racing Products distributed by Happy Time Hobby (408) 988-1188; happytimehobby.com.



**NEED
HELP?**

Send your "Troubleshooting" questions and comments to troubleshooting@airage.com, or mail them to "Troubleshooting" c/o RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA.

HPI Savage 21 Nitro Steel Combo



This new 52 tooth Spur and 14 tooth Clutch Bell are CNC machined from solid steel and then hardened for unmatched performance and durability. RRP 7052

NEW

HPI Savage 21 Nitro Vented Flywheel



Aluminum vented flywheels move air over clutch bell, improving performance and cooling. RRP 7000

NEW

Stealth Spurs



These precision machined spur gears are super quiet. They're available in 48P in 60T thru 96T sizes, and fit any Associated or HPI electric car or truck. RRP 1860 thru RRP 1896.

Electric Car And Truck Pinions:

48P Absolute Series Pinions



Super hard, lightened and cut with unmatched precision. Great with any spur, but with an Absolute spur, even on-off noise is gone! Available in 48P in 16T thru 28T sizes. RRP 1416 - RRP 1428.

48P / 64P SuperLite Aluminum Pinions



They're lightened, hard coated and precision cut. Available in 48P in 16T thru 28T, and 64P in 24T thru 38T. RRP 30XX (48P) and RRP 31XX (64P). Only \$5.25

48P Hard Nickel Plated Steel Pinions



These precision cut gears have an extremely hard coating that makes them really last. Available in 12T thru 35T. RRP 1012 - RRP 1035

ROBINSON RACING PRODUCTS

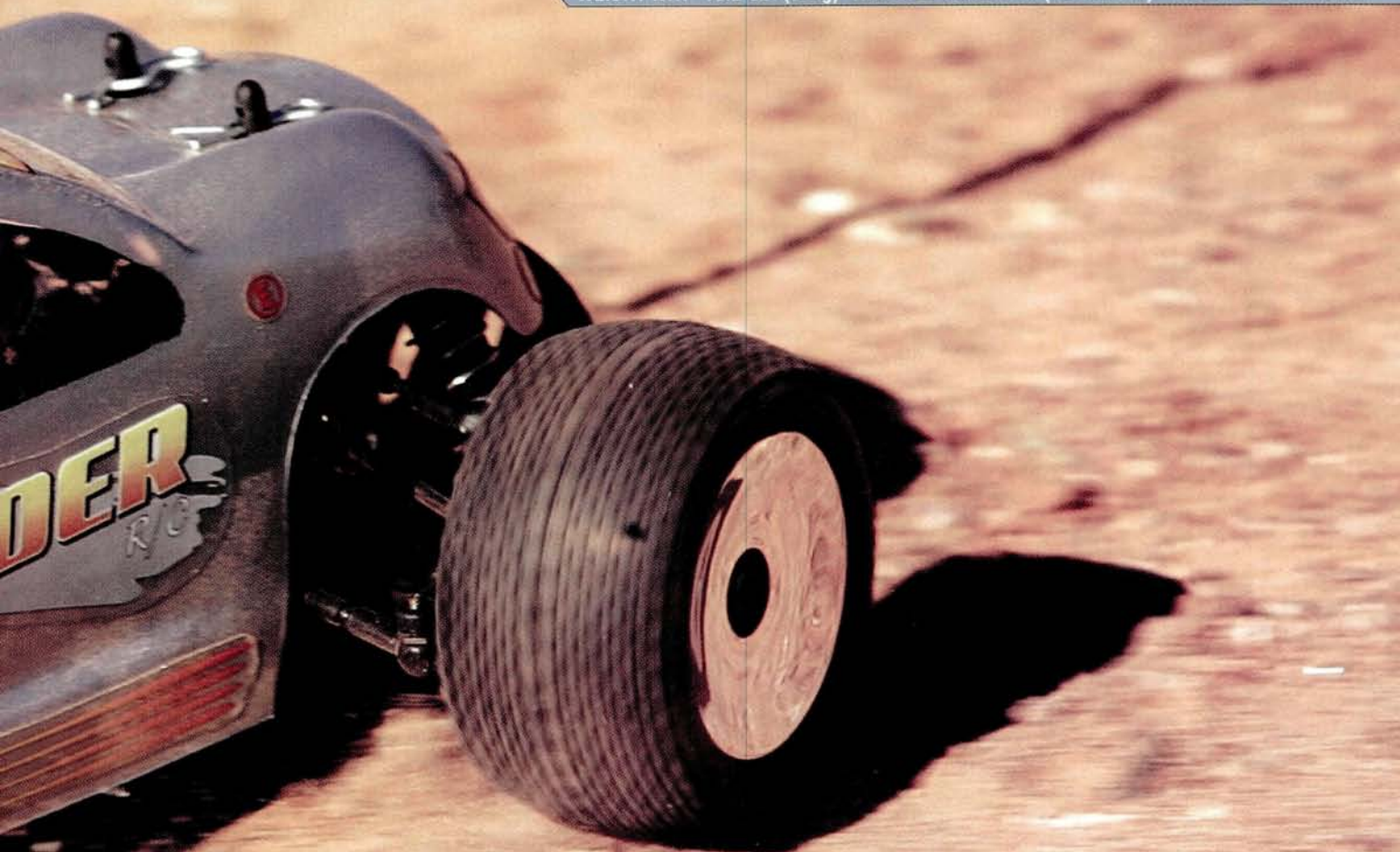
4968 Meadow View Drive · Mariposa, CA 95338 · Voice 209.966.2465 · Fax 209.966.5937

www.robinsonracing.com



SPECS WIDTH 7.1 IN. (180mm) HEIGHT 3.5 IN. (88.9mm) LENGTH 9 IN. (520mm) WHEELBASE 5.75 IN. (146mm)

WEIGHT RTR* 19.2 OZ. (544g) TIRE SIZE 1.2X2.3 IN. (131X58mm) *EQUIPPED AS SHOWN



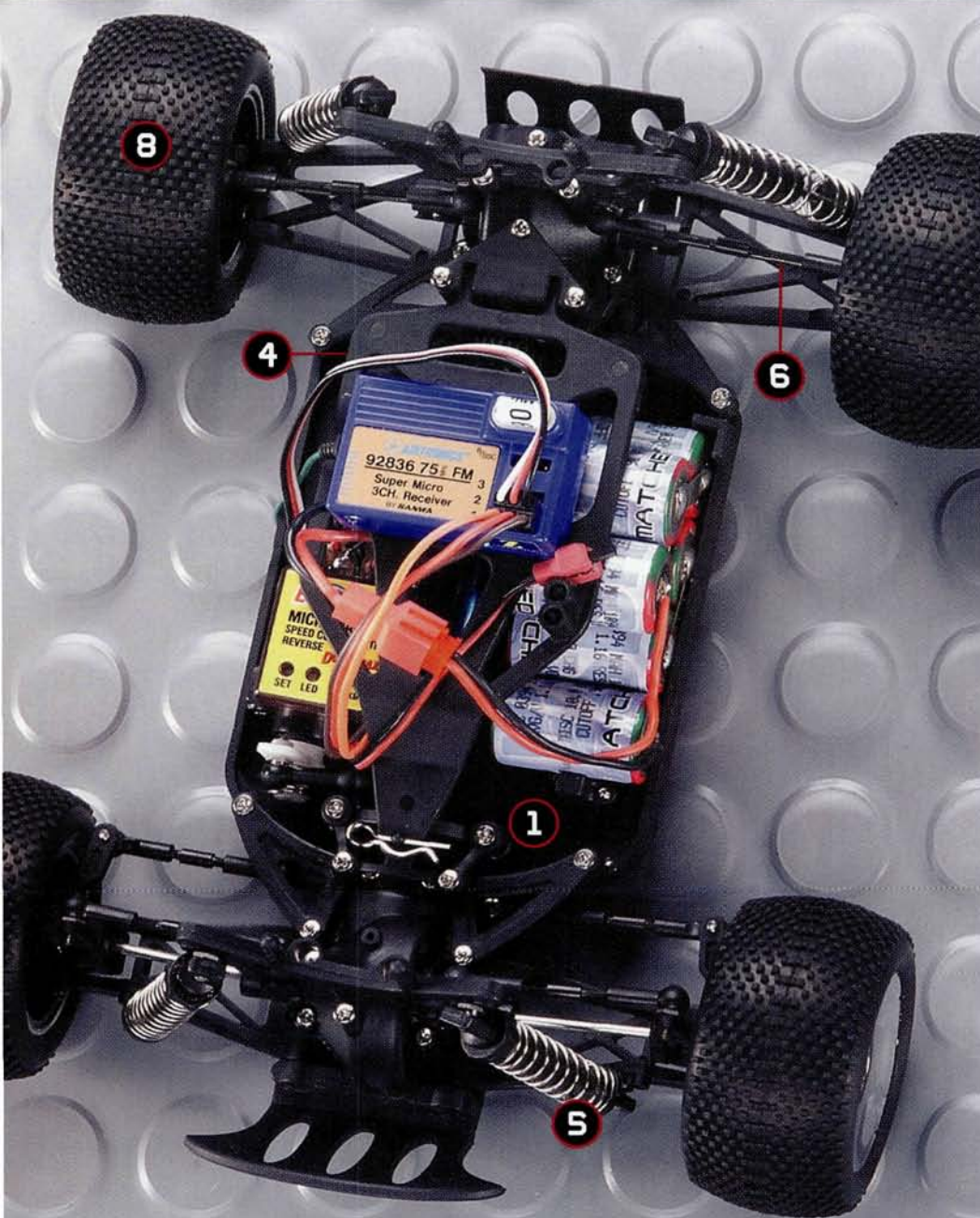
Trinity
Itsy Bitsy

SPYDER

**IT DOESN'T HAVE EIGHT LEGS—
BUT IT DOES HAVE 4WD**

IT LOOKS AS IF TRINITY is out to conquer both ends of the monster-truck size spectrum. First came the 1/7-scale nitro Spyder, and now (dare I say it?) along comes the Itsy Bitsy Spyder—an 1/18-scale mini-monster that's ready to run with 4WD, independent suspension and a stadium stance. Trinity will also offer a rolling-chassis version that's assembled minus radio gear, and that is what we tested for our First Drive.





FEATURES

1. SEMI-TUB CHASSIS

The "TC3 style" layout seems to have become the default standard for shaft-drive cars, and the mini Spyder puts it to good use. The upper deck rises high above the chassis to accommodate a hump-style pack and tilts back for battery and motor access.

2. SHAFT-DRIVEN, BALL-BEARING 4WD

An aluminum shaft spins the front and rear gearboxes, and like nearly all shaft-drive RC cars, the Spyder's system is very simple: each gearbox holds a bevel pinion and a ring-gear differential. Eight metal-shielded ball bearings keep the action smooth (a pair for each bevel pinion and a pair for each diff) while the wheel axles roll on plastic bushings.

3. BEVEL-GEAR DIFFERENTIALS

The Spyder's diffs are safely enclosed in the front and rear gearboxes, but the differentials themselves use an "open" design. Each diff has three spider gears that fit directly into the ring gear, and the gearbox captures the differential halves to hold the assembly together. The diff doesn't have its own case to protect the gears, but the gearbox is well sealed. Even after a photo shoot on the notoriously insidious, powdery clay of the local baseball diamond, the diffs were spotless.

4. TRINITY MICRO MONSTER 280 MOTOR

The RTR Spyder's included motor is a basic closed-endbell 280, which is the most popular micro size, so there are plenty of aftermarket horsepower options, including Trinity's own Mini Monster. The motor uses a pressed-on plastic pinion, and the motor mount slides in slotted holes to facilitate gear-mesh adjustment.

5. FRICTION SHOCKS

Super-basic stuff here. The shocks are basically empty plastic sleeves that serve as spring holders, but since the spring rates aren't overly stiff, the Spyder's suspension doesn't feel as bouncy as one would expect an undamped system to feel.

6. DOGBONE DRIVESHAFTS

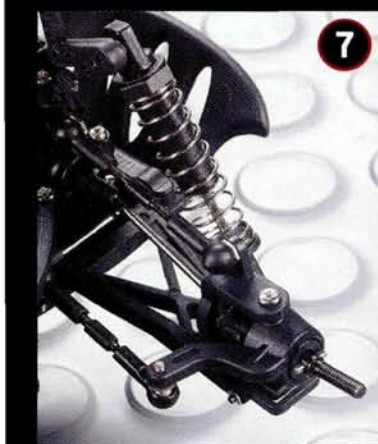
Simple, strong and steel, the Spyder's chrome-plated 'bones' add a little style. They meet with plastic outdrives on the diffs and steel stub axles at the hub carriers.

7. ADJUSTABLE INDEPENDENT SUSPENSION

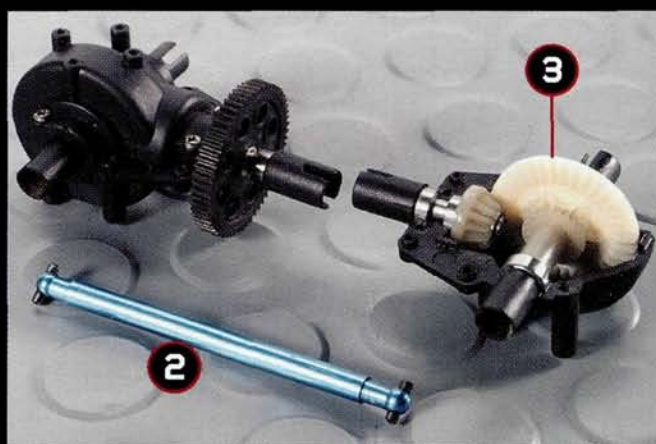
The Spyder's suspension is a classic lower H-arm/upper-camber-link design with a C-hub steering system. Turnbuckles are used for camber and toe adjustment. The inboard hinge pins are held onto the chassis with separate mounts so that you can remove the front and rear gearboxes without dismantling the suspension. The design also leaves the door open for optional mounts with different kick-up, anti-squat and arm-toe geometry.

8. KNOBBY TIRES ON CHROME WHEELS

The Spyder's low-profile knobby rubber befits its stadium stance, and the tires' fine pin-spoke tread is super-grippy, especially on carpet. The dish-wheels' chrome plating is bright, and the factory glue job is gap-free.



Turnbuckles, capped suspension arms, and friction shocks handle bump control.



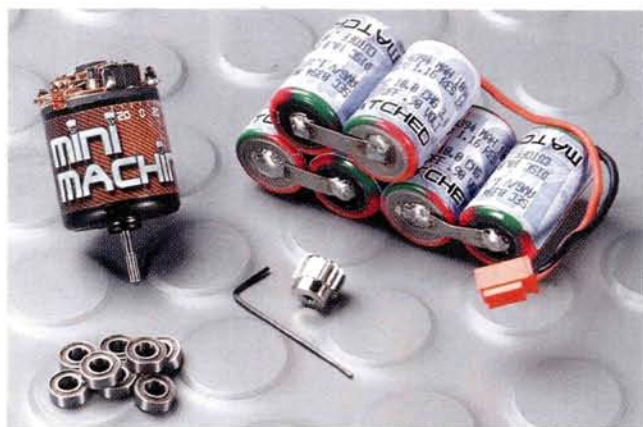
That aluminum shaft is up for anything, and the well-sealed gearboxes are just about dirt-proof.

FIND IT

Go to page 276 for manufacturers' contact information



Here's what you'll score with the RTR Spyder: the receiver and speed control are a single unit, but the servo is a plug-in unit, so you can swap it out for an upgrade. The transmitter is full-size, and a 6-cell pack is standard.



Trinity has lots of upgrades for the Spyder already. In addition to matched packs, hotter motors, ball bearings and pinion options, Trinity will offer a pit bag, wheels and tires, spinners and more.

PERFORMANCE

It isn't an official rule, but it is a fact: any time we review a mini-car, its first test is on the hallway carpet. There's plenty of room, it's right there, and there are skateboard ramps in the hall closet; who can resist? From the first squeeze of the trigger, the little Spyder impressed us with its quick acceleration and blazing (for a mini) 18mph top speed. The grippy knobs combined with 4WD gave the little truck super acceleration, and it easily walked Kev's Mini Quake. The turning radius was supersharp, too, and we could easily cut the wheels hard enough to flip the truck. The tiny included servo is a little noisy, but it does a great job of yanking the wheels. Flying the Spyder off a skateboard ramp was tough on the undamped suspension, and the truck landed with a harsh rebound hop, but it took the "ka-bonging" in stride and jumps nicely. You can adjust its midair attitude easily, just like a "big" 4WD car or truck.

Off the carpet and into the dirt, the Spyder showed it really can go off-road. It obviously can't climb huge obstacles given its scale and stadium-style setup, but on smooth dirt it's a blast—especially with Mini Machine power. You can pitch it sideways, do donuts and generally kick up a whole lotta dirt while using a lot less space (and getting much longer run times) than you would with a 1/10-scale ride. Just watch out for the exposed pinion and spur gear; a lot of dirt and debris gets thrown into the chassis where it could foul the gears. A slot under the spur gear lets most of it fall away before it can get in the gears, but if you hear clicking or other nasty noises, stop and clean out the offending debris.

THE VERDICT

Four-wheel drive is definitely the hot setup for a mini-truck, and Trinity's is a tough customer that's fun to wheel. We also like the stadium-style wheel, tire and body package, and Trinity, already has monster-style upgrades if you want a beefier look. In the red-hot world of mini trucks, the Spyder definitely deserves a test drive. ■

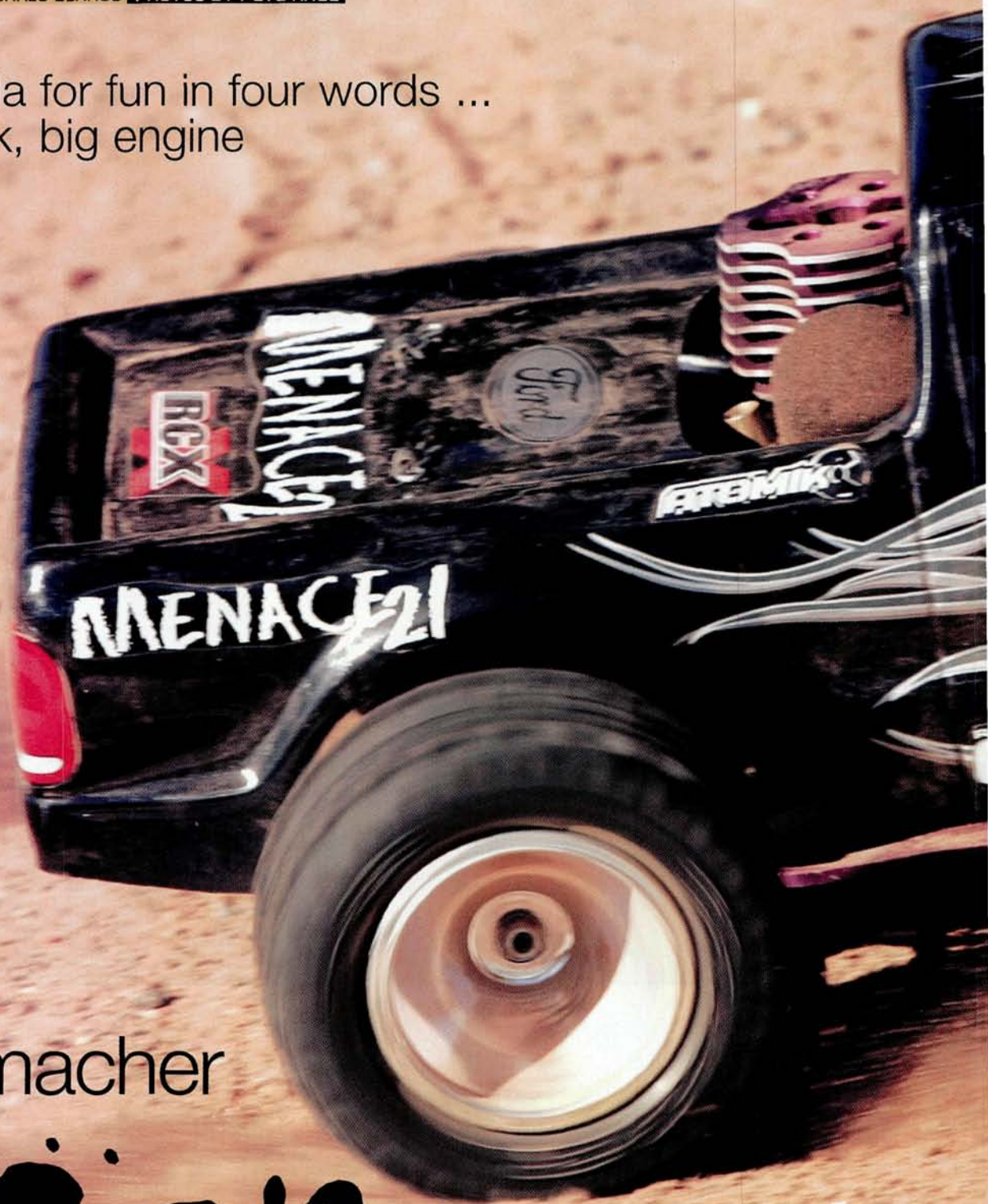


ITSY BITSY SPYDER RTR

Our test Spyder arrived as a rolling chassis with the same servo as will be included with the RTR, and we finished the build with a DuraTrax ESC2000 speed control, an Airtronics MX-3 radio and Trinity matched GP1100 cells. The official RTR package will include:

- > **2-CHANNEL RADIO.** The Spyder is a "mini," but the radio is full-size and available with six frequencies. Naturally, you can adjust the steering and throttle trims.
- > **INTEGRATED RECEIVER/SPEED CONTROL.** The combination unit is convenient, but the steering servo is still separate, so you're not tied to the standard unit. If you want to upgrade to standard radio gear later, the chassis' roomy top deck makes it easy to fit the gear onboard.
- > **6-CELL PACK.** The 1100mAh pack gives long run times, and with a full 7.2 volts, it isn't short on juice.
- > **CHARGER.** The included wall-type charges at 350mAh, and fills the included pack in about three hours.
- > **PAINTED AND DECALED BODY.** Our tester has a production body and decals, so what you see is what you get. In addition to silver, the mini Spyder will be available in red, yellow, blue, white and gold.

The formula for fun in four words ...
Small truck, big engine



Schumacher

Menace



21

THINK OF THE SCHUMACHER MENACE 21 AS A SEESAW.

On one side, you have "power," on the other side, you have "weight." Now imagine that "power" is the giant fat kid from Willy Wonka, and "weight" is that little dude in chess club. That should give you a good mental picture of just how lopsided the Menace's power-to-weight ratio is, thanks to Schumacher's simple concept of stuffing a big-block .21 engine into a 1/10 scale, 4WD stadium-style truck that would normally roll out with a .12 or .15 powerplant. And it's ready to run with a 3-speed transmission! Sound like fun? Trust me, it is.

KIT FEATURES

CHASSIS. A 3mm slab of flat, purple 6061 T6 aluminum plate serves as the Menace's foundation. Although none of the Torx-head screws protrude from the bottom of the chassis, the steel hex-head screws for the engine mounts do stick out about 1/2mm. A fiberglass upper deck runs the length of the chassis and is attached to the top of each diff case to stiffen the platform. For fuel-tank protection, a thick fiberglass plate is bolted to the chassis and juts out underneath the fuel tank to save it from side impacts.

An enclosed radio box houses the Airtronics receiver and a 4-cell alkaline battery holder and receiver switch, and it also serves as a mounting point for the servos. The lid is held in place by five screws, so battery and crystal swaps are not tool-free jobs. Removing four screws and the servo horns allows you to remove the radio box and servos to make truck repairs and cleaning easier.

DRIVETRAIN. The Menace 21 is a unique rig and boasts a one-of-a-kind drivetrain for a 1/10-scale nitro truck. A single Aramid-fiber-reinforced belt wraps around front and rear ball differentials, and each diff turns a pair of genuine MIP steel CVD drive-shafts that mate with clamp-on alloy wheel hexes. To receive engine power, the wide belt wraps around a layshaft that holds a centrifugally shifted, pawl-type 3-speed transmission. The transmission's shift points aren't adjustable, so we'll have to see how well it's set up during testing.

Strong brakes are a must in a machine with as much speed potential as the Menace, so Schumacher specs a large single disc for four-wheel stopping. The brake disc appears to be fiberglass, but it's Schumacher's proprietary S1 composite—tougher stuff.

ENGINE AND ACCESSORIES. The Thunder Tiger Pro 21 has proved its worth in the Thunder Tiger EB4 and Team Associated Monster GT. The 21 features ABC construction (aluminum piston, brass sleeve with chrome plating) for power and durability—standard on most engines these days. A stylish 9-fin, purple-anodized heat-sink head tops the big-block and has been machined to shed as many BTUs as possible.

Schumacher chose a shaft-operated E-Start for the Menace

that will save you from any blisters you might get using a pull-starter, and it makes starting a breeze. A starter shaft is included, but you need to supply a cordless drill that's capable of turning 500rpm or more.

Since the rear-exhaust 21 sits perpendicular to the chassis' centerline, a 180-degree header positions the CNC tuned pipe parallel with the rear shock tower for a clean-looking, rear-exhaust setup. The rubber stinger is not long enough to allow you to route it through the rear of the body, so if you don't like the idea of the exhaust spraying the tailgate, you should cut a hole in the rear of the body to allow exhaust to escape.

The Menace's primer-less fuel tank holds 125cc of fuel and passes it through a "stone" filter before it feeds the big-block engine. Schumacher specifies only nitro fuel with synthetic lubricant for the Menace 21. Fuels containing castor oil might leave a sticky residue that, in turn, gums up the E-Start mechanism and interferes with its proper operation, according to Schumacher.

INCLUDED ELECTRONICS & ACCESSORIES

AIRTRONICS BLAZER SPORT TRANSMITTER

The Menace 21 sports the popular Airtronics Blazer radio system. The Blazer transmitter has a solid, balanced feel in your hand. There are trim knobs for throttle/brake and steering and for dual-rate adjustable steering

and a glow igniter that requires a D-cell alkaline battery are included with the Menace 21.

E-START SHAFT

A 5mm, ball-end starter shaft is included for use with any cordless drill that spins at 500rpm or more. "Can I use a Roto



travel. Triple battery LEDs and charge jacks allow the management of alkaline and rechargeable batteries.

AIRTRONICS 94102 STEERING & THROTTLE/BRAKE SERVOS

The 91402 servos from Airtronics are dubbed "precision heavy-duty standard servos" and offer up to 53 oz.-in. of torque and a transit time of .16 second.

FUEL BOTTLE & GLOW IGNITER

A 500mm fuel bottle with a screw-on top and rubber cap

Start instead of a drill," you ask? Unfortunately, the shaft is 1mm smaller than the shaft used with the Roto Start, so the two are not interchangeable.

TOOLS

A Torx no. 10 wrench is included with the Menace 21 as is an L-shaped Torx wrench for a backup tool. A fiberglass turn-buckle wrench handles camber and toe adjustments and also fits the ball ends. Three steel hex wrenches round out the included tools.



The Thunder Tiger Pro 21 sits on purple alloy engine mounts and sports a convenient shaft starter. The shaft is included; you provide the drill to spin it.

SPECIFICATIONS

MANUFACTURER Schumacher
MODEL Menace 21
SCALE 1/10
PRICES \$500 (RTR), \$430 (ARTR)
Vary with dealer

DIMENSIONS

Wheelbase 11.22 in. (285mm)
Width 11.77 in. (299mm)

WEIGHT

Total, as tested 84.64 oz. (2,400g)

CHASSIS

Type CNC-machined plate with fiberglass upper deck
Material (upper/lower) 3mm 6061T6 aluminum, purple anodized/fiberglass

DRIVETRAIN

Type Full-time, single-belt 4WD
Primary 15/19/23T clutch bell; 57/61/65T spur gears
Transmission ratio 4.33:1 (first gear), 3.21:1 (second gear), 2.47:1 (third gear)
Final drive ratio 7.80:1 (first gear), 5.78:1 (second gear), 4.46:1 (third gear)
Driveshafts MIP CVDs
Differentials Ball type
Bearing type Rubber-sealed ball bearings

SUSPENSION

Type Lower H-arms with adjustable turnbuckle upper links
Shocks Aluminum-body, fluid-filled with preload spacers

WHEELS

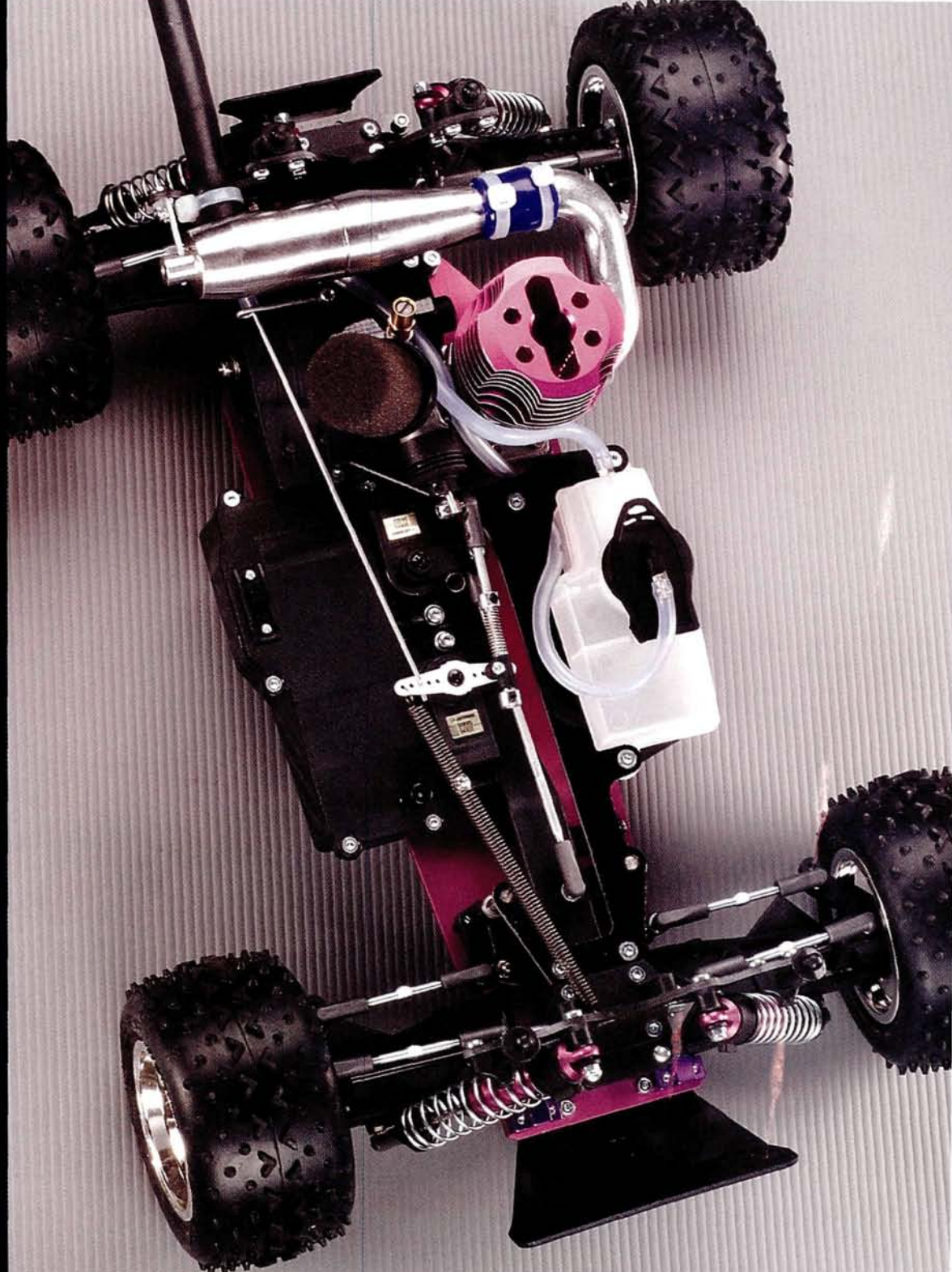
Type One-piece plastic dish with chrome finish

TIRES

Type Schumacher V-tread without foam inserts

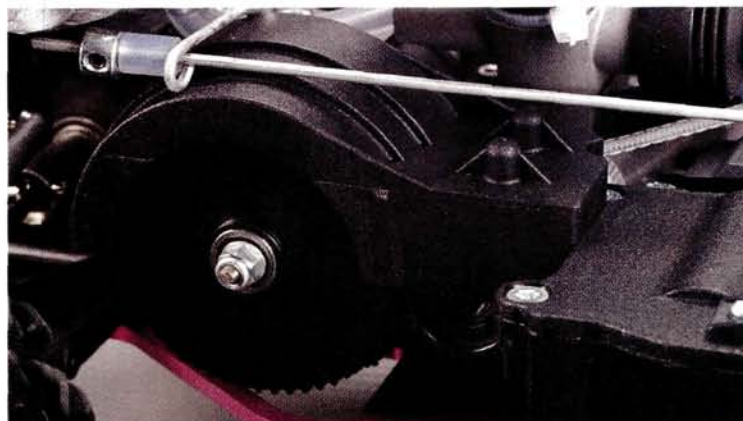
ENGINE & ACCESSORIES

Engine Thunder Tiger Pro 21, 2-needle slide, rear exhaust, E-Start
Clutch 2-shoe
Manifold Spring-retained tubular
Pipe CNC-machined aluminum
Fuel tank 125cc primer-less with integrated stone filter



“It quickly became apparent just how fast the Menace really is.”

A 3-speed transmission, S1 composite disc brake and triple-pinion clutch bell all ride under a protective housing. Debris escapes through a cutout in the chassis.



SUSPENSION AND STEERING. Lower H-arms with turnbuckle upper links are mated with the Menace 21's chassis and allow camber and front toe-in adjustments. The lower arms are gusseted and stiff, and aluminum-body shocks with foam volume compensators spring the Menace at each corner. Preload spacers are installed on the shocks, but additional spacers for further fine-tuning aren't included.

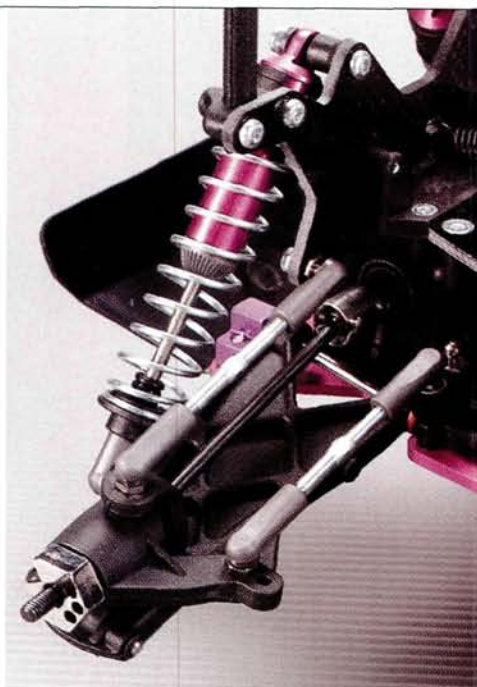
The Airtronics 94102 steering servo is mounted far aft on the central chassis tunnel and uses a nearly 5-inch-long linkage rod to swing a dual-bellcrank steering system and adjustable, spring-loaded servo-saver.

BODY, WHEELS AND TIRES. Atomik provides a painted Ford F-350 pickup body, and it's available in three color schemes: red/silver, blue/silver and black/silver (the color of our test rig). The windows aren't installed and must be glued into place with Shoe-Goo or a similar flexible adhesive. The rear window must be trimmed or removed to clear the heat-sink head, and it's also recommended that you cut a 2-inch round hole in the windshield for engine cooling and remove the left window for easier refueling.

The Menace wears Schumacher's Vee 2 and Vee 4 tires. They don't have foam inserts,



The purple-anodized shocks look great and provide smooth damping. Steel differential outdrives spin steel MIP CVDs for long-term durability—a good thing with so much power on tap.



A well-gusseted lower suspension arm maximizes stiffness but is flexible enough to minimize breaks. The alloy clamping wheel hexes are standard and won't wear out or fall off.



but the tires' very firm rubber compound supports the truck's weight just fine. Schumacher's deep chrome-dish wheels are the standard, 2.2-inch truck size but use a non-standard hex hub. If you want to mount different rubber on the Menace, you'll need to use Schumacher wheels.

LIKES

- Fast! 62mph top speed
- Requires only fuel and AA batteries.
- Includes high-quality Torx driver

DISLIKES

- Tires don't have foam inserts.

FIND IT

Go to page 276 for manufacturers' contact information

YOU'LL NEED

- Fuel
- 12 AA batteries
- 1 D battery

WE USED

- Dynamite Blue Thunder 20%
- GP 2000mAh NiMH rechargeable
- RadioShack Energell



"Project" Menace

Schumacher offers a long list of Speed Secret factory hop-ups for the Menace, so I wanted to see how my Menace would look with a bunch of these parts. Here is a list of what I added:

- Venom tires—item no. U6701
- Wheels, chrome dish—U2676
- Carbon-fiber parts
 - Front shock tower—U2654
 - Rear shock tower—U2655
 - Upper deck—U2656
- CNC-machined purple-alloyed parts
 - Steering knuckle hub carriers (F/R)—U2652/U2653
 - Suspension arms (F/R)—U2649/U2650
 - Shock-tower mount—U2651
- Nylon wheel nuts—U2135
- Titanium turnbuckles (pair, 45/53mm)—U2566/U1573

Additional option parts available.





PERFORMANCE

I was excited to get through the break-in process and to make some ballistic speed runs with the Menace 21, but I also wanted to follow Schumacher's break-in instructions for the Pro 21 engine. It's sometimes tempting to pull full throttle before you've completed break-in, but even at $\frac{1}{2}$ throttle, the Menace was fast, so I went through six tanks of fuel before I unleashed 100 percent of my trigger finger.

On a gravel road, a normal rolling, 5mph "street-start-style" launch produced showers of marble-size pieces of stones from all four tires as the Menace searched for grip. Even with all four tires spinning, the truck was still quite fast. The low-bite surface made long, sweeping "Dukes of Hazard"-style turns—the way to go to carry speed into the turns. Tuning out some steering with the dual-rate knob helped rein in some of the truck's looseness in the turns and

prevented it from completely spinning out (this can happen if you get too eager with the throttle while turning). A few times, I got the truck out of shape rolling it into some tall grass but there wasn't any damage to speak of.

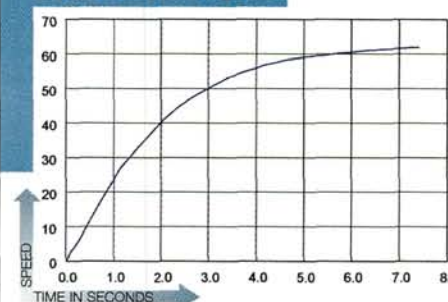
Small and midsize jumps were within reach of the Menace, but some stadium-size jumps upset it to the point at which it was difficult to control. A few hard crashes didn't leave any visible damage, but I decided to stick with more standard launch ramps nonetheless. One small pebble got jammed in the spur gear and stopped the Menace in its tracks, but once I had removed it, my truck was back in action.

On the grass, the Menace was a hoot. Tall grass can cause RC vehicles to overheat, but I found a field mown almost as short as a putting green and knew it would be safe for fast running. With such high traction, a quick stab to full throttle sent the truck forward with paint-peeling acceleration and caused dirt and

grass to fly everywhere. It quickly became apparent just how fast the Menace really is. With more deliberate action, it was easy to get it onto its rear wheels for wheelstand action—always fun. On the grass, the cornering was much better than on gravel, but traction-rolling was more common. Most of the time, however, the Menace landed on all fours and kept going. The Airtronics steering servo seems well suited to a light truck such as the Menace.

The Menace had proved its mettle off road; now it was time for some high-speed runs on pavement. It has a lower first-gear ratio than a similarly set up 2-speed truck, and that was evident when I nailed the trigger. It shot away so fast that I didn't even notice the first-to-second shift, and it hit third gear and its 62mph top speed in less than 8 seconds. Even at top speed, the Menace never got out of shape while accelerating or braking in a straight line. The extra-firm V-tread tires held up well on pavement, but aggressive steering inputs resulted in spinouts—understandable, considering the off-road tires and soft factory suspension settings.

RAJAR TESTING



THE VERDICT

The Schumacher Menace 21 is a "Monster Garage" dream come true in a ready-to-run package. A reliable, fire-breathing, big-block engine with a super-easy shaft-start system on a $\frac{1}{10}$ -scale 4WD stadium truck chassis—and all I need to get are fuel and batteries? Sign me up! The Menace hits 62mph right out of the box and has respectable track-handling ability. Our performance-oriented ratings lack a score for "fun factor," but that's where this truck really pegs the needle. For tire-shredding, high-speed, "Did you see that?" action, the Menace 21 is in a class by itself.

RATINGS

Instructions	●●●●●●●●●●	7	The instructions for the Menace are almost too basic, but they provide a few tuning tips.
Included electronics	●●●●●●●●●●	9	High-quality Airtronics radio system and servos.
Parts fit & finish	●●●●●●●●●●	8.5	All parts and fasteners fit well, but the tires look old school.
Turn-in	●●●●●●●●●●	9	The truck turns in well at all speeds, regardless of the surface.
Corner speed	●●●●●●●●●●	8	Carried speed well on dirt and grass surfaces but spun out in the loose stuff.
On-power steering	●●●●●●●●●●	8	Steers well at low- to mid-throttle, but at full throttle, it tends to understeer.
Braking	●●●●●●●●●●	9	The truck stopped well and didn't require any adjustments during testing.
Bump handling	●●●●●●●●●●	9	The suspension handles small to midsize bumps very well.
Jumping	●●●●●●●●●●	8	Deals best with smaller jumps, a little sketchy on big launches.

Best buyer: All off-road nitro fans, especially speed freaks.

You gotta give the DuraTrax guys credit: when they jump into a new RC category, they don't mess around. Take the new 1/18-scale Mini Quake, for instance; like all DuraTrax RTRs, it's truly ready to run—right down to the included transmitter batteries. But it's more than just complete: instead of 2WD, this mini-monster has a full-time shaft-driven 4WD system and 8 genuine fluid-damped shocks instead of mere friction shocks. Add Futaba-built radio gear, a full set of ball bearings and an included rechargeable battery pack with charger, and you have a high-performance, low-cost monster that's small enough to run indoors but truck enough for real dirt action.



DuraTrax MINI QUAKE



KE

DuraTrax monsterizes
mini-trucking with a
rough-and-ready RTR

KIT FEATURES

CHASSIS. The Mini Quake's platform is a plastic tub-type unit with integrated lower gearbox halves and suspension mounts. Even though it's 1/18 scale, there's room enough for a receiver and a steering servo of standard size (but without mounting tabs). Molded bumpers and skidplates protect the front and rear, and the bottoms of the skidplates keep the lower hinge pins in place. A blue-anodized aluminum rod joins the shock towers to stiffen the chassis.

DRIVETRAIN. On most minis, the pinion gear is pressed onto the motor's output shaft, but that isn't the case with the Mini Quake. Its 16-tooth aluminum pinion gear is held securely with a setscrew. The pinion gear is connected to a molded 45-tooth spur gear that's supported on both sides by ball bearings. An aluminum shaft spins the pinion gears in both of the front and rear diff housings. A molded spur gear seals and drives the diffs, and inside, you'll find small bevel gears that allow diff action. The light grease in the diff housings keeps the bevel gears lubed and controls the gears' action. Plastic slider universals connect the diffs to the outer hubs. Just like the spur gear, the diff and axles are supported by ball bearings.

This RTR is truly ready-to-run

SUSPENSION AND STEERING. The suspension uses lower A-arms with fixed, plastic, upper arms. The arms' inner sections ride on small hinge pins, and the outer sections use a kingpin-type design. Eight plastic-body shocks with blue-anodized aluminum caps handle bump control, and they're filled with silicone fluid—no bouncy friction shocks here. None of the suspension and steering links are adjustable, and the bushed, dual-bellcrank steering system is connected directly to the servo without a servo-saver. Given the Mini Quake's size and the flexibility of the plastic steering links, I doubt that servo problems will be an issue.

INCLUDED ELECTRONICS & ACCESSORIES

DURATRAX 2-CHANNEL TRANSMITTER

Futaba makes the radio gear for DuraTrax, and it's a great choice for the Mini Quake. It worked great during my tests and didn't show any signs of glitching; it feels good in your

DURATRAX SX-100 STEERING SERVO

DuraTrax's standard SX-100 servo is good for about 44 oz.-in. of torque, and that's more than the Mini Quake will ever need. Too much is just enough, I say.



380 MOTOR

The Mini Quake's 380 motor is a "big-block" compared with the 280 motors used in most other minis. It produces plenty of power, but with the truck's speed-oriented gearing, it could use even more torque.

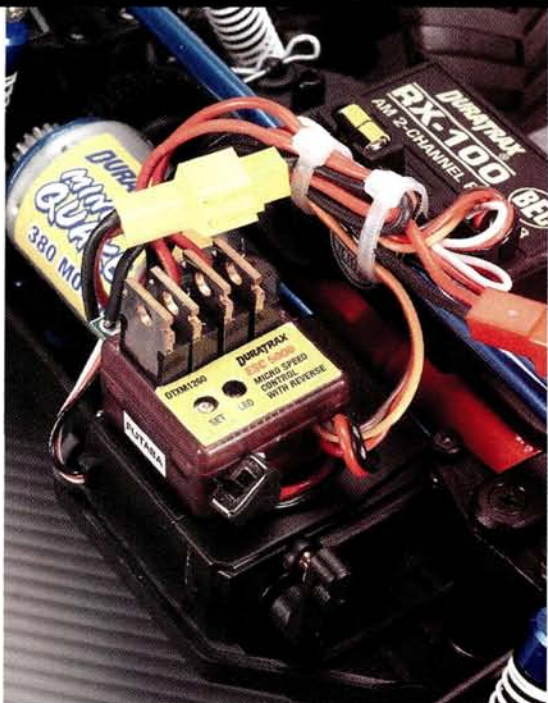
hand, too. A bright red LED lets you know when the power has been turned on, and it offers features such as dual-rate steering, throttle and steering trims and servo-reversing.

DURATRAX 7.2V NI-CD PACK & WALL CHARGER

A 7.2V 600mAh battery pack and a 380 motor are a good combination for a truck of this size. The 7.2V rechargeable battery pack fits nicely on the left of the chassis. An included 200mAh wall charger puts power back in the pack in about 3 hours.

AA BATTERIES

DuraTrax goes the extra mile and includes AA batteries for the radio. This RTR is truly ready to run.



Far left: the DuraTrax ESC5000 micro speed control is tiny compared with the standard servo it sits on. Note that DuraTrax nips the servo's mounting tabs off so it can fit in the chassis.

Left: the plastic-body shocks are fluid-damped for superior bump control, and their anodized caps add a little style. Note the universal-joint driveshaft.

SPECIFICATIONS

MANUFACTURER DuraTrax
MODEL Mini Quake
DISTRIBUTED BY Great Planes
SCALE 1/18
PRICE \$180
Varies with dealer

DIMENSIONS
Wheelbase 6.5 in. (166mm)
Width 7.4 in. (185mm)

WEIGHT
Total, as tested 25 oz. (725g)

CHASSIS
Type Molded semi-tub
Material Plastic

DRIVETRAIN
Type Shaft-drive 4WD
Primary 16T pinion/45T spur gear
Transmission ratio 2.53:1
Final drive ratio 7.12:1
Driveshafts Dogbones
Differentials Greased bevel-gear
Bearing type Metal-shielded ball bearing

SUSPENSION (F/R)
Type Upper and lower wishbone; non-adjustable
Shocks Plastic-body with aluminum cap; fluid damped

WHEELS
White, 5-spoke, 50mm diameter

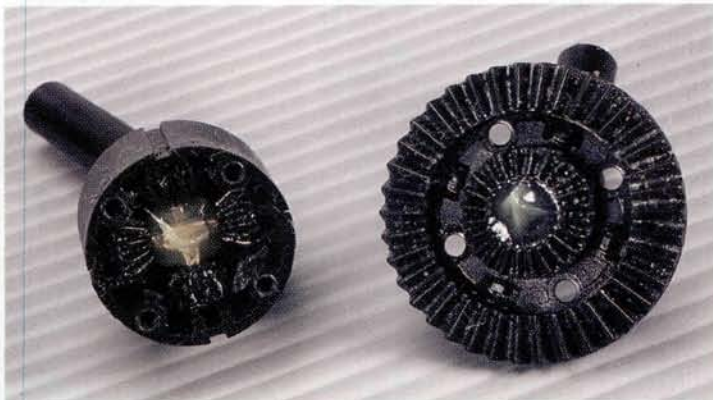
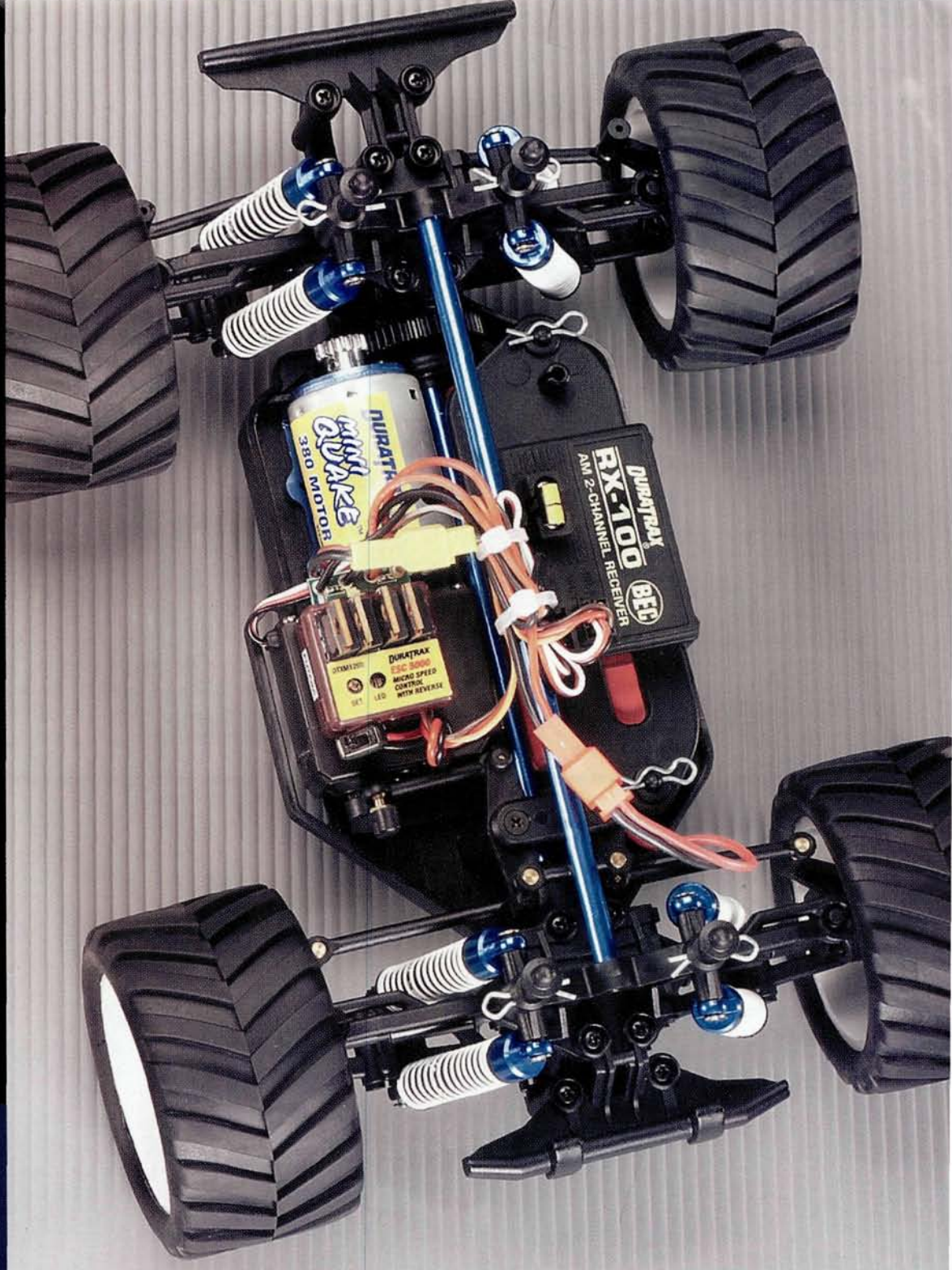
TIRES
Chevron tread, low profile

ELECTRONICS
DuraTrax
—2-channel transmitter and receiver
—SX-100 servo
—ESC5000 speed control
—7.2V 600mAh battery
—200mAh wall charger

FACTORY OPTIONS

- Aluminum parts
 - Steering-knuckle set—item no. DTXC8209
 - Heat-sink motor mount—DTXC8279
 - Bellcranks—DTXC8862
 - Shock set—DTXC9034
- Carbon-fiber battery strap—DTXC6301
- Carbon-fiber main shaft—DTXC7408
- CV driveshaft—DTXC7407
- Turnbuckle set—DTXC9472
- Chrome wheels—DTXC9869
- 13-tooth pinion gear—DTXC8349

A 380 motor gets the truck moving. The aluminum pinion gear is held with a setscrew rather than press-fit into place.



The Mini Quake's bevel-gear diffs are built tough with four spider gears per differential. As you can see, DuraTrax doesn't skimp on the grease.

TUNING

INFO

BETTER HANDLING

If you want racier handling, mount the shocks in the outermost holes on the suspension arms to lower the overall center of gravity and allow you to carry more speed in the turns.

MORE TORQUE

The stock gearing is pretty tall, and that's good for speed but bad for torque. For more climbing power, install the optional 13-tooth pinion gear.

BODY, WHEELS AND TIRES.

The Mini Quake body is available in six color combos, and it's screen-printed and mounted, but DuraTrax leaves the decals to you. They're die-cut on the sheet, so you can just peel and stick. Low-profile chevron-tread tires are glued to good-looking, white, spoked wheels that are mounted in an unusual way. Instead of sliding over a stub axle to engage a pin or hex, the wheels have

part of the stub axle molded into them. They pass through the outboard hub-carrier bearing and meet the ends of the drive-shafts halfway through the hub carrier. If you remove a wheel, teasing the parts back together is tricky. And for now, there aren't any aftermarket wheel options.

LIKES

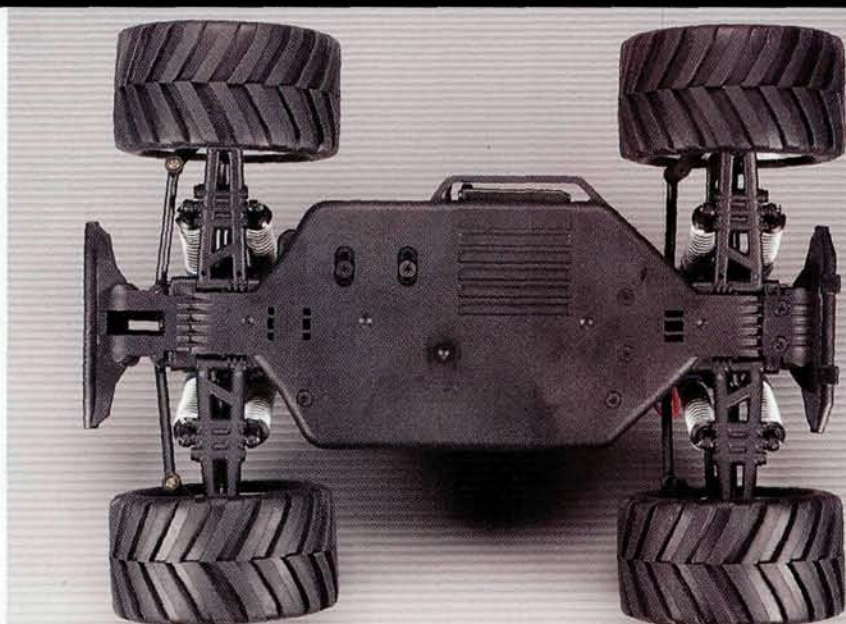
- › Surprisingly fast (must be that 380 motor).
- › Supple 8-shock suspension.
- › Truly off-roadable 4WD.
- › High-quality, full-size radio gear.

DISLIKES

- › Could use a little more grunt on the low end.
- › Toe and camber aren't adjustable.
- › Finicky wheel-mounting design.

FIND IT

›› Go to page 276 for manufacturers' contact information



The Mini Quake's lower gearbox halves and suspension mounts are molded into the chassis, so there aren't many screws in the underside. Note the slotted motor-screw holes that permit gear-mesh adjustments.

THE COMPETITION

VEHICLE >> REVIEWED
 Associated RC18T
 Losi Mini T >> 03.04
 Thunder Tiger ZK2/ZT2
 Trinity Mini Spyder
 Venom Mini Giant
 XRAY M18T

MINI MONSTER



PERFORMANCE

I first tested the Mini Quake in the *Car Action* office's long hallway. Some people call it fooling around, but I assure you, it's hardcore testing! I was a little disappointed with its acceleration from a standstill, but its top speed of 14mph more than made up for it. This little sucker moves out! On carpet, the steering is very responsive, thanks to the tires' wide contact patches and the powerful steering servo. It was almost too responsive, and took a little getting used to. Once I had the steering dialed, I set up the included cardboard jump. The truck jumps very well; it's easy to get its nose up by giving the throttle a quick blip before it hits the jump. It soaks up landings very well, too—no bounce when it hits the ground.

To test the Quake's climbing ability, I set up some books for it to scale. The truck had little trouble getting up and over square edges as long as they weren't more than half the height of the tires.

Then it was time to hit the dirt. I took the little truck along for a photo shoot at Wolcott Raceway (Wolcott, CT) and let it loose on the

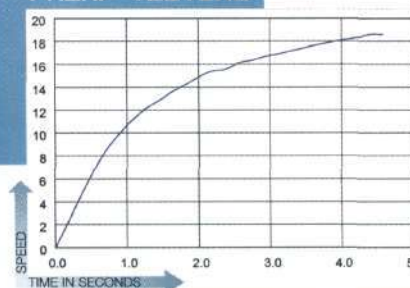
big off-road track. When I nabbed the throttle, I got the tires to spin, and I was soon pitching it sideways. Man, things are more fun in the dirt! I noticed that the suspension was a little too stiff for my taste. Small imperfections tossed the Quake around, but it was nothing that a little shock tuning couldn't take care of (which you can actually do, since the Quake has genuine fluid-damped shocks).

I was very happy with the ESC's operation: it's smooth from neutral to full speed, and the brakes work well. Reverse kicks in a few seconds after you reverse to protect the drivetrain from being stripped out if you throw the truck into reverse at full speed.

After testing, I checked out the exposed spur and pinion gears for wear, and expected to see a lot of dirt in their teeth, but they were merely dusty. In fact, the chassis barely held any dirt at all—must be that high-riding stance.

My only disappointment was the truck's short run time (6 minutes on average). I wouldn't mind as much if the included charger juiced the pack more quickly, but 3 hours is a long wait between runs.

RADAR TESTING



Distance (in feet) traveled in:	0-132 ft. time	Speed at 132 ft.
1 SEC. > 8.9	6 SEC.	18.6 MPH
2 SEC. > 28.1		
3 SEC. > 51.5	Time to top speed	Top speed
4 SEC. > 77.2	4.5 SEC.	18.6 MPH
5 SEC. > 104.5		

THE VERDICT

The Mini Quake is my new favorite mini-truck. Standard radio gear is the way to go with minis; it opens the door to upgrades. I was a little disappointed with the Mini Quake's short run time, but I'm sure that higher-capacity batteries are on the way. One thing's for sure: it's harder to get work done at the office with the Mini Quake on my desk!

PARTINGS

Instructions	●●●●●●●●●●	Everything you need to know to get the truck running, but the parts descriptions could be better.
Included electronics	●●●●●●●●●●	Radio gear works well, and dual-rate steering is a bonus. Higher-capacity battery would be nice.
Parts fit and finish	●●●●●●●●●●	Pretty good all around. Slim plastic steering and toe links are flexy and look flimsy.
Turn-in	●●●●●●●●●●	Standard-type steering servo is a powerhouse for a mini. Lots of steering here!
Corner speed	●●●●●●●●●●	The truck scrubs a little speed going through turns, but it isn't that bad.
On-power steering	●●●●●●●●●●	This thing is dialed on asphalt and carpet, but it pushes a little in the dirt.
Bump handling	●●●●●●●●●●	I think the suspension is a bit on the stiff side for small bumps.
Jumping	●●●●●●●●●●	The Mini Quake is a little truck, but it jumps "big" and with all the control of a 1/10 machine.

Best buyer: Kids and adults who want the baddest mini-monster around.

**We Drive Nitro
Touring's First-Ever
IFMAR World
Champion!**



Kyosho
V-one
RRRR



HAVING PRODUCED MORE NITRO CARS AND TRUCKS than any other manufacturer, Kyosho has always been a huge presence in the nitro RC car market, and the company has enjoyed decades of success in competition nitro off-road. The only thing that had escaped Kyosho until recently is ringing success in the competition on-road market. The first blow was struck at the 2003 IFMAR 1/8-scale On-Road World Championship. The new Kyosho Evolva decisively won the top-qualifier spot and the final. Kyosho engineers took the knowledge gained from that excellent performance and redesigned the 1/8-scale V-One-RR 200mm sedan to compete at the IFMAR 200mm Nitro Touring Car Worlds in Brazil. The result is what you see here: the Kyosho V-One-RRR.



KIT FEATURES

CHASSIS. The backbone of the chassis is a nicely machined 3mm-thick aluminum lower plate. It's light, and the edges are beveled to create more ground clearance when the chassis rolls in the corners and/or squats under acceleration. The hole under the flywheel is chamfered, and that prevents damage to the starter-box wheel.

The upper deck of the RRR is woven graphite, and it sits only a few millimeters lower than that of the previous V-One models, but the layout of the hardware has been changed dramatically. The fuel tank is long and leaner, and the receiver battery pack is mounted flat under the fuel tank (instead of vertically behind the tank as it is in the RR Evo). Both servos now lie flat on the chassis. The low-riding servos and receiver battery pack lower the car's CG, so it handles better than any previous V-One K-cars have.

DRIVETRAIN. The V-One series is solidly in the belt-drive camp. Its more conventional drive system faces a serious challenge from the shaft-drive FW-05R and upcoming RR stablemates, but the introduction of this new RRR clearly shows that Kyosho—and consumers—aren't prepared to choose one over the other as long as they are both competitive.

A smaller 3D Centax-type clutch gets power to the drivetrain. The flywheel and clutch assembly are smaller in diameter to get the engine lower and to reduce rotating mass. The recommended clutch setting is a little stiff, but back it off a little, and you have one of the best, most reliable 2-speeds available. The RRR has 0.8 module gears fitted to its clutch and tranny. This makes the gears run more smoothly and allows more ratio options. In the rear, the RRR has a sealed, 6-gear differential filled with 30,000WT silicone fluid; the power goes through a one-way in front. A diff housing and diff-locking piece are included, but the internal parts and drive cups are not.

ENGINE AND ACCESSORIES. As with most competition kits, the choice of powerplant and accessories is left up to the buyer. I used an O.S. .12 TR R-Spec engine to power the RRR for this Track Test. It gets a lot more exhaust duration from a

BUILDING & SETUP TIPS

Kyosho includes good instructions, but some things might be unclear to someone who's building a Kyosho car for the first time. A chrome finish is used on some fasteners while a black coating is used on others. The instructions would be more helpful if the black fastener icons were shaded in to identify them. Despite my minor missteps caused by inaccuracies in the manual, average buyers shouldn't have any problems working through its assembly. The following steps merit a little extra attention to help assembly go more smoothly.

STEP 2: A front one-way collar (part no. 74) is on the plastic parts tree next to the lower shock-spring retainer. It isn't a metal washer, so don't freak when you can't find it among the washers.

STEP 5: Set the blades of the front anti-roll bar to the flat position for the softest setting. The stiff setting shown in the instructions is too much for average tracks.

STEPS 7 & 19: Install the belt-tension adjusters in the "loose" position.

STEPS 11 & 27: The instructions tell you to build one pair of shocks now and the other later in the assembly. Build both sets of shocks at the same time, and save yourself the headache of having to go back and do it again. Just be sure not to mix up the front and rear shocks; they're different. Also, oil the O-ring in the threaded shock collar to make it easier to adjust.

STEP 15: The upper screw that holds the brake shoes in place does not screw into the hole closest to the top of the bulkhead as indicated in the manual. Thread the screw into the hole that is slightly lower and closer to the rear of the bulkhead.

STEP 18: Pre-thread the screw holes in the bulkheads where the upper links will be attached. It's very rigid plastic, and you may strip the Phillips-head screw when installing it for the first time.

STEP 29: The rear body posts are installed on the back of the shock tower, which the positions them under the wing of the Protoform Mazda 6 body. Eyeball the body before you start to mount it and drill holes. If it looks as if the body posts will come up under the wing, install the body mounts on the front of the rear shock tower. This will move the posts about 1/2 inch forward.

mini test

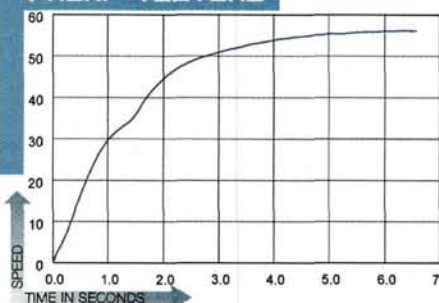
O.S. .12 TR R-Spec

The O.S. R-Spec engine and V-one-RRR's strong 3D clutch produce very quick acceleration. I swapped out the P6 plug for the hottest O.S. P3 turbo glow plug because I think the mixture settings are less critical when your mixture is slightly rich. The hot plug also produces stronger punch and more stable needle settings. With the clutch set to where the car can accelerate with good control, the V-One-RRR pulls out to 132 feet in a blazing 2.83 seconds at 47mph and registers a top speed of 58.79mph in just 4.8 seconds. It's just plain fast, and it isn't even geared for top speed. The RRR is geared for the track.

» Engine performance will vary with gearing, vehicle, fuel and test conditions.



RAJAR TESTING



Distance (in feet) traveled in:	0-132 ft. time	Speed at .132 ft.
1 SEC. > 23.9	2.77 SEC.	50.1 MPH
2 SEC. > 47.8		
3 SEC. > 71.7		
4 SEC. > 95.6		
5 SEC. > 119.5		
	Time to top speed	Top Speed
	6.56 SEC.	58.8 MPH

SPECIFICATIONS

MANUFACTURER Kyosho
MODEL V-One-RRR
DISTRIBUTED BY Great Planes
Model Distributors
SCALE 1/10
PRICE \$479
Varies with dealer

DIMENSIONS

Wheelbase 10.2 in. (260mm)
Width 7.97 in. (200mm)

WEIGHT

Total, as tested 96.9 oz. (2,748g)

CHASSIS

Type Machined plate
Material 7075 aluminum

DRIVETRAIN

Type Triple-belt
Primary 16/61T (1st gear);
21/56T (2nd gear)
Drivetrain ratio 2.00:1
Final drive ratio 7.625:1
(1st gear); 5.333:1 (2nd gear)
Driveshafts Dogbone
Differentials (F/R) One-way/
6-gear sealed
Bearing type Metal-shielded
ball bearing

SUSPENSION

Type (F/R) Double A-arm/lower
H-arm with turnbuckle upper link
Shocks Threaded, aluminum-body
with Teflon shaft guide and
bladder seal

TIRES

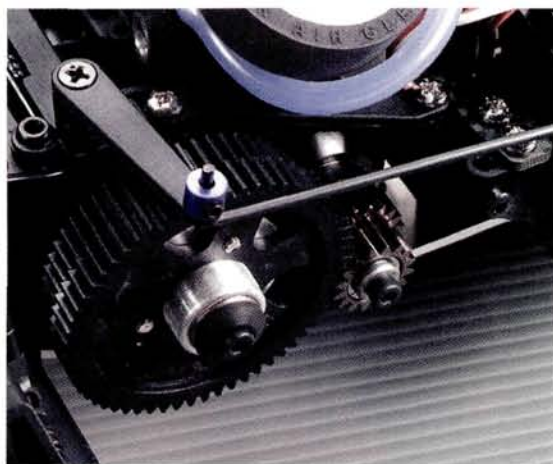
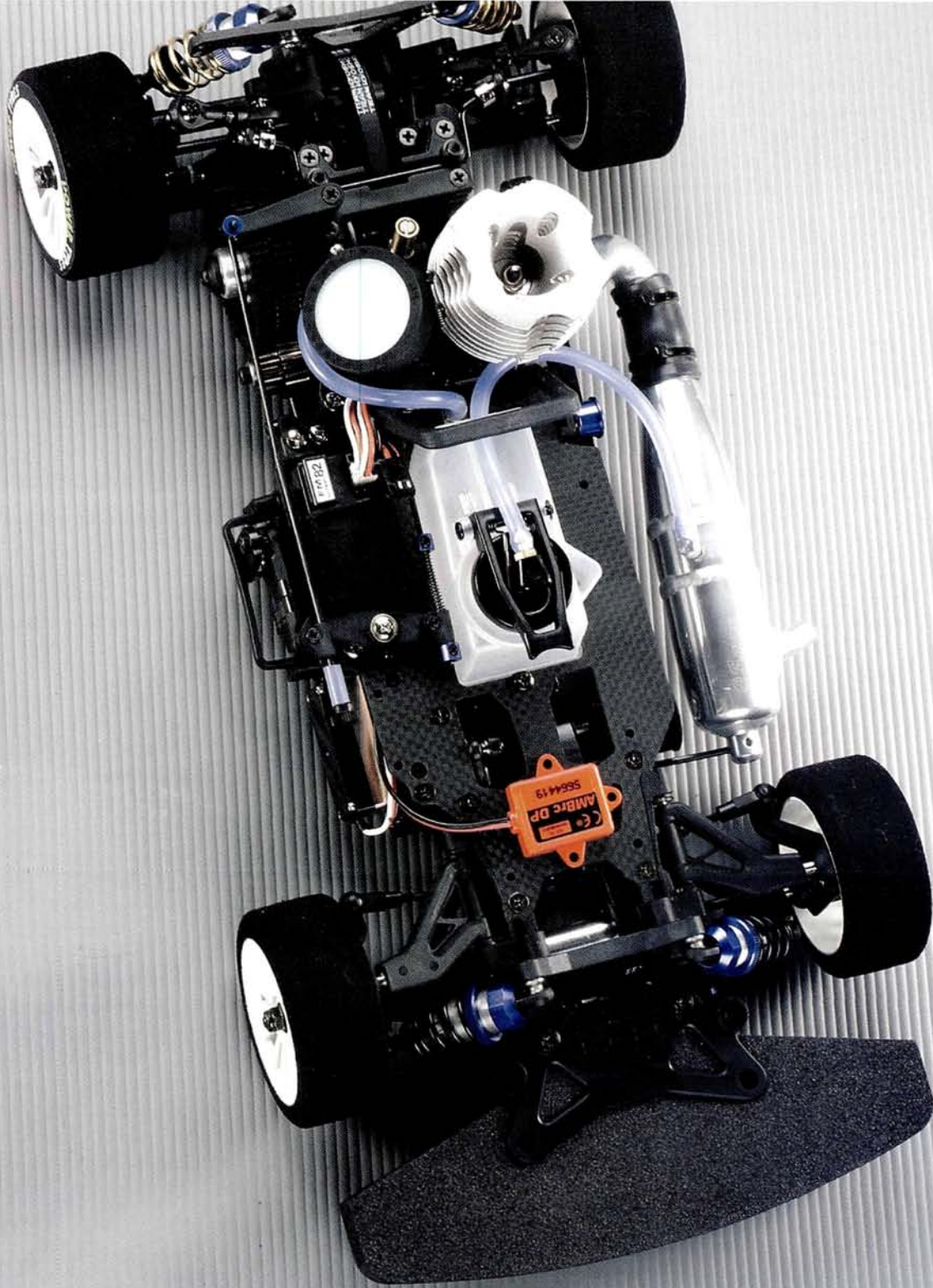
Type Power Tyres 35-shore, zero-offset

ENGINE & ACCESSORIES

Clutch 3D Centax-type
Fuel tank 75cc primerless with
internal filter

FACTORY OPTIONS

- 1.3 and 1.4mm rear anti-roll bars—item no. VZ217
- One-piece aluminum engine mount—TSW27
- Low-friction drive belts—VZW201-203
- Aluminum brake hub—VZW205
- Front drive belt for 24T pulley—VZW237



A smaller 33mm flywheel is the base of the Centax clutch. The smaller-diameter clutch combined with lower engine mounts reduces the height of the engine to lower the center of gravity for better handling. The included fine-pitch 0.8 module gears permit smaller ratio changes to better tune the car to track conditions.



Laying the servos flat on the deck isn't new, but Kyosho used this in combination with a multitude of changes to lower the RRR's CG for better handling. Given this car's early results in competition, this appears to have worked very well.

short-stroke setup, so it's a screamer. The R-Spec is fitted with an O.S. header and a T1030 pipe. The engine comes with a P6 turbo glow plug, but I switched to my favorite: a P3 turbo.

The new, longer, skinnier fuel tank sits above the receiver pack, but it still has the fuel catch around the filler neck that prevents overflowing fuel from spilling all over the top deck. As with the previous tanks, however, the spilled fuel will drain right onto the lower chassis plate if you don't reroute it with a section of fuel line.

SUSPENSION AND STEERING. The RRR features typical pivot-ball suspension, but there are a few key differences that differentiate it from that of the RR Evo. The RRR has new rear hubs with a vertical mount for the upper link so it can be shimmed for ultra-fine roll-center adjustment. Additionally, the lower arms in the rear and the upper arms in the front use inserts to hold the hinge pins in place. Three inserts are included for each end of the hinge pin. The inserts can also be used to modify rear roll center and the vehicle's "squat" geometry. The inserts on the hinge pins of the front upper arms can be used to adjust front roll center and reactive caster. By varying the offsets to angle the hinge pins



New rear hubs feature a vertical mounting position for the upper camber link. Shims between the hub and the upper link allow you to fine-tune the roll-center geometry for better handling. Note the inserts in the rear hub; they can be used to modify the hinge pin mounting position for more roll-center adjustment.

LIKES

- › World-championship performance.
- › High-quality parts and materials.
- › Durable for a high-level competition car.
- › Wide tuning range.

DISLIKES

- › Stamped disc brake fades under heavy use.
- › Middle belt rubs exhaust flange.
- › Needs alloy pipe mount: plastic isn't secure enough.



upward or downward, the caster angle will change as the suspension is compressed.

The RRR's suspension-arm material is stronger than that of the RR. They aren't molded graphite, but they're very strong, and they flex less than those used on other Kyosho cars. This might make the arms a little more fragile, but the new arm material is a welcome change.

The RRR's threaded-aluminum shocks have machined pistons that are bolted to the shock shaft—an important but often overlooked feature. Bolting the piston to the shaft eliminates the play that is typical when the piston is secured by two E-clips.

The steering has been carried over from the RR Evo. It's a center-mounted single-bellcrank system that includes three bellcranks on which the spacing of the holes for the steering pivot balls ranges from 10 to 12mm. The bellcrank with holes that are 10mm apart has the least Ackerman, and the one that has them 12mm apart has the most.

BODY, WHEELS AND TIRES. The RRR kit doesn't include a body, but it does include a complete set of Power Tyres 35-shore tires mounted on turbine wheels. Two adhesive tire-saver rings are included to protect the rear tires from chunking.

I chose to outfit the RRR with a Protoform Mazda 6 body; it was the body of choice at the IFMAR World Championship and the overwhelming favorite at the Touring Car Worlds in Brazil. The incomparable Josh Thiel masterminded the paint scheme for mine in record time and, as usual, it looks great.

YOU'LL NEED	WE USED
Radio	KO Propo EX-10 Helios
Servos	KO Propo 2364 & 2363 Digital FET servos
Engine	O.S. .12 TR R-Spec, 3-needle slide carb, rear-exhaust
Tuned pipe	O.S. T1030
Header	O.S. P10L
Body	Protoform Mazda 6 200mm
Receiver battery pack	Reedy 1100 mAh NiMH
Fuel	Trinity Platinum 20%



PERFORMANCE

The RRR's strong acceleration is primarily due to its high first-gear ratio (7.63:1); the punchy O.S. R-Spec engine is also a major factor. Combined with the clutch setting recommended in the instructions, the aggressive first-gear ratio launches the RRR a little too hard. I pulled the clutch bell and backed off the adjuster about ½ turn, and that made a big difference.

The stock gearing is well suited to small to medium-size tracks. At 5.33:1, the second-gear ratio is taller than that of previous K-cars. This bumps the car's top speed a little to give it a little more "range," which will help carry the car down a longer straightaway. Testing with the ATS system revealed that the stock gearing carries the car pretty well down straights up to 175 feet. Longer tracks will require a ratio change for both first and second gear.

It's worth noting that there's a 5-tooth difference between the first and second spur gears; this translates into a 20-percent increase in the ratio change when shifting into second gear compared with the ratio change in pre-Evo cars and many others on the market. That means the car gets off the line more quickly, and though it may lose a step on the shift, it has more range down the straightaways. Throughout all of the testing, the transmission shifted flawlessly. It's the transmission Kyosho developed for the Phantom 1/8-scale car, and it's strong and consistent but still very light to get more power to the ground.

Braking is the one area of performance that could be improved. The brake disc is stamped, and that makes the brake surface uneven. The high spots on the brake disc turn into hot spots when you start getting on the brake, and that leads to signs of brake fade before you



burn through your first tank of fuel. A machined brake disc is a good idea if you rely on the brakes a lot—essential if you plan to run a front diff or spool.

The cornering ability of the RRR is very strong. The front anti-roll bar is at its hardest setting when the car is built according to the manual, and that produces a little too much understeer on a track with average bite. Turning the blade-type anti-roll bar to its softest setting, however, creates the most aggressive steering response of any K-car we've tested. It may have a little too much steering for the average driver, but that's the best problem to have. It's infinitely better to have too much steering; not having enough steering means making all kinds of compromises to the setup just to get the car to turn. The RRR is definitely on the good side of that balance. The included front one-way lets the car rotate well

when it enters tight corners, and it pulls strongly coming out. The stock drivetrain has a slight overdrive to the front end, and that helps it pull through the corners. The drive ratio of the rear end is 2.00:1 while the front end is 1.917:1. The extra 24-tooth pulley in the kit will equalize the front and rear ratios when conditions demand it. The abundance of traction and the low CG also produce a noticeable increase in corner speed.

Most cars that have good steering response become a little "nervous" (tend to need constant steering corrections) and are often on the edge of losing the rear end in most corners. The RRR, much like the FW-05R, gets through the corners with surprising speed and agility, but you don't get the sense that you're fighting the car. In fact, it's quite stable and easy to drive.

THE VERDICT

The challenge of formulating an overall opinion and describing the performance capabilities of the RRR has already been made easier by its domination at the IFMAR World Championship in Brazil. The RRR took the top six positions in the Main and eight of the 10 positions in the final—all in its first major competition. This thorough and convincing victory drives home the point that this car is highly competitive at any level. Although similar in name to its predecessor, the cars have very few parts in common. Subtle but very effective refinements learned through the successes of the Evolva and FW-05R influenced the development of the RRR, and the result is a machine that dominated a competition that included some of the best drivers and cars in the world. That's a pretty promising start.

FIND IT

Go to page 276 for manufacturers' contact information

RATINGS

Instructions	●●●●●●●●●●	7	Mostly drawings and limited written guidance.
Parts fit & finish	●●●●●●●●●●	8.5	Typical Kyosho high-quality. Suspension bushings in the front upper arms are loose.
Turn-in	●●●●●●●●●●	10	Excellent steering response. Reacts sharply to steering input without losing the rear.
Corner speed	●●●●●●●●●●	9.5	The crisp steering response and low CG keep the car running flat and fast through the corners.
On-power steering	●●●●●●●●●●	9.5	The front overdrive pulls the car wherever you point it.
Braking	●●●●●●●●●●	7	Uneven surface causes hot spots that lead to brake fade.
Acceleration	●●●●●●●●●●	9.5	Low first-gear ratio and a tight clutch setting make the RRR very snappy.

Best buyer: Intermediate to advanced nitro touring racer

TRACK TEST

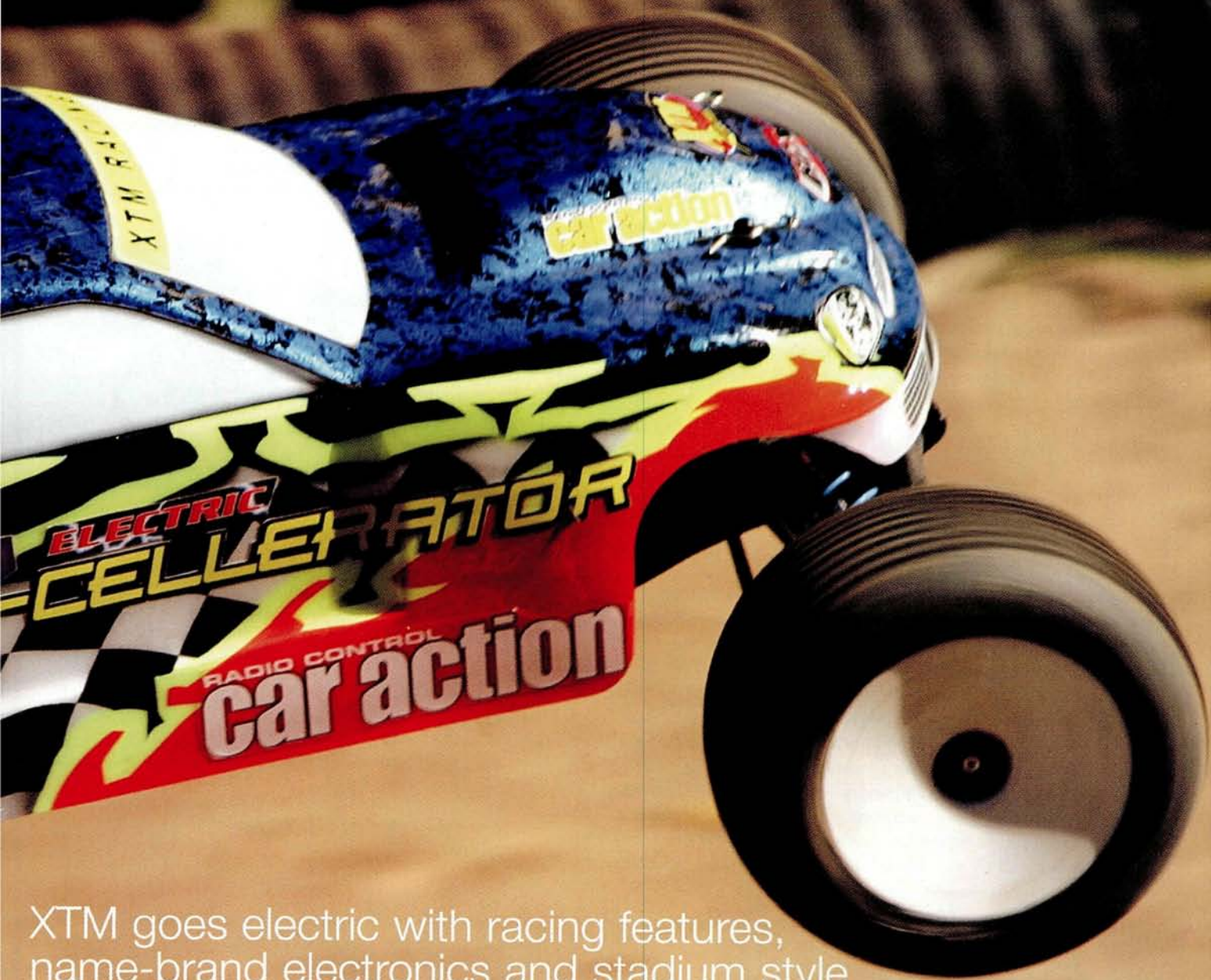
1/10-SCALE 2WD ELECTRIC STADIUM TRUCK

BY CRAIG BIANCO PHOTOS BY PETE HALL



XTM Racing

X-CELL



XTM goes electric with racing features, name-brand electronics and stadium style

XTM RACING HAS ALREADY MADE A NAME FOR ITSELF in RTR truck circles with the nitro X-Cellerator, which we first reviewed in the November 2003 issue. The low-priced truck impressed us with its high-end features, and it made the cut for our "Hot RTRs Under \$350" feature in the same issue (as well as in our last issue's "Fast \$400"). And why not? With high-end stuff like threaded-aluminum shocks, full bearings, universal-joint axles and a racing-style chassis and suspension, there was a lot to like. Unless, of course, you wanted an electric version. There wasn't one. Fast-forward to now, and the battery-carrying X-Cellerator is here. It matches the features of the nitro version but adds an Mtroniks speed control to its Hitec gear package. And, of course, it arrives fully ready to run including glued tires and a finished and mounted body. Time to drive.

1/27/01 **EP RTR**

KIT FEATURES

CHASSIS. The X-Cellerator features a plastic semi-tub chassis with generous cross-ribs to stiffen the platform. A central battery tray accommodates a stick or side-by-side battery pack, although the fit is snug for side-by-side packs. The bottom of the chassis is angled up on each side for cornering clearance, and the front and rear suspension assemblies can be removed intact for maintenance. There's plenty of space for the included radio gear, and the Associated-style steering-servo placement allows you to access the servo and steering system without removing an upper brace.

DRIVETRAIN. The X-Cellerator's transmission is a classic racing-style 3-gear unit with a ball differential, steel outdrives and metal-shielded ball bearings. A dual-disc slipper clutch is standard, and it features dark-anodized pressure plates with wide slipper pads that are keyed to the spur gear. The clutch can be adjusted through an opening in the gear cover. Steel universal-joint axles transfer power to wheels that also spin on ball bearings.

The truck couldn't be easier to set up and drive.

SUSPENSION AND STEERING. XTM went for a traditional suspension and steering setup with a lower H-arm/steel turnbuckle upper-link configuration in the front and rear. The front suspension uses combined kingpin/ball studs, and a steel hinge pin bracket prevents a hinge pin tear-out in a crash. The suspension arms are made of a resilient, crash-resistant plastic, but they're thickly molded and well braced to maintain stiffness. Molded-in ball studs hint at the possibility of a swaybar option, but the suspension is fully independent in stock form. Aluminum threaded-body shocks with knurled, plastic preload adjusters handle the bumps, and they are mounted on plastic shock towers that have a variety of holes for shock-position adjustments.

INCLUDED ELECTRONICS & ACCESSORIES

HITEC AGGRESSOR AM TRANSMITTER AND RECEIVER

XTM went beyond basic by spec'ing the Aggressor. It has the usual trim knobs and servo-reversing switches (thankfully operable with bare fingers) and

shut the Eco 20 down until it cooled). The Eco 20 is 100-percent waterproof but will not actually operate while wet; it will shut down until you dry it off. Another item of note: no switch! As soon as you plug it in, it's on.



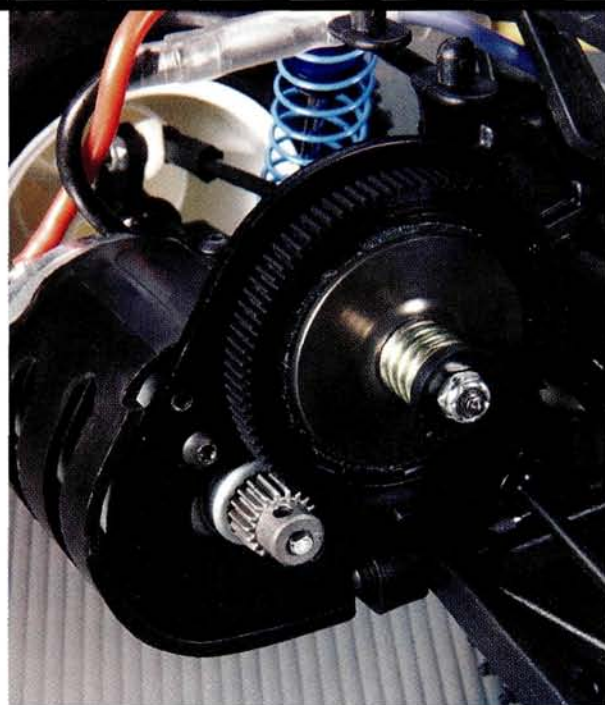
adjustable steering dual-rate and a three-LED battery meter. Most important, it's a comfortable and reliable radio.

MTRONIKS SONIK 4 ECO 20

This unique speed control is rated for motors down to 20 turns, and its finned aluminum case guarantees heating won't be a problem (but if it were, the thermal overload system would

SEALED-ENDBELL MABUCHI 540 MOTOR

The good ol' Mabooch lives on and is as reliable and long-lasting as it has always been. It's a great motor for first-time drivers, and although it sure stretches the maximum minutes from a charge, it's short on speed. After you've mastered driving without crashing into stuff, you can upgrade to a hotter motor.



Left: the slipper clutch uses a pair of thick fiber pads for smooth action, and the gears are standard 48 pitch. The spur gear is XTM-specific. **Center:** the front suspension arms are thick, and the threaded shocks are stock equipment. **Right:** note the T4-style shock tower and CV-style drive axles. The 3/16-inch stub axle accepts Losi wheels.

SPECIFICATIONS

MANUFACTURER XTM Racing
MODEL Electric X-Cellerator
DISTRIBUTED BY Global
 Hobby Distributors
SCALE 1/10
PRICE \$200
Price varies with dealer

DIMENSIONS

Wheelbase 11.54 in. (293mm)
Width 12.99 in. (330mm)

WEIGHT

Total, as tested w/battery
 84.6 oz. (2,398g)

CHASSIS

Type Molded tub with
 reinforcing bracing
Material Composite plastic

DRIVETRAIN

Type Enclosed 3-gear gearbox
Primary 18T pinion/87T spur gear
Transmission ratio 2.6:1
Final-drive ratio 12.56:1
Driveshafts Steel universals
Differential 12-ball adjustable
 differential, steel outdrives
Bearing type Metal-shielded
 ball bearing

SUSPENSION

Type (F/R) Lower H-arms with
 adjustable upper links
Shocks Threaded aluminum
 with anodized alloy bodies

WHEELS

One-piece plastic dish

TIRES

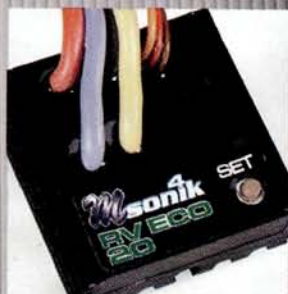
XTM foam-supported ribbed fronts
 and ladder-block rears

ELECTRONICS

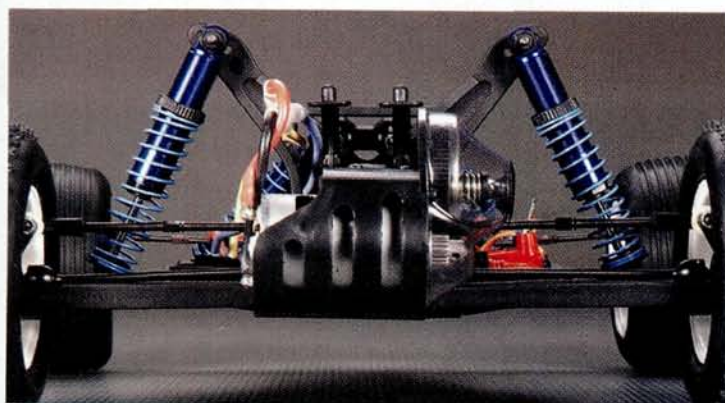
Transmitter Hitec Aggressor
 AM 75MHz
Receiver Hitec HAS 02MB
Servo Hitec HS-311
Speed control Mtroniks
 Sonik 4 Eco 20
Motor Mabuchi 540



The X-Cellerator borrows freely from current racing designs and incorporates many competition features.



The Msonik 4 Eco 20 speed control doesn't use an on/off switch. Plug it in, and it's on!



A plastic guard and Lexan cover keep the motor and gears safe from damage, and the truck's race-ready stance is easy to spot.



When compared with the rear shocks, the front shocks are laid down dramatically. Note the steel hinge pin brace that's just behind the front mini-bumper.

The steering system is a compact dual-bellcrank setup with an adjustable cam-type servo-saver built in. Steel turnbuckle tie rods join the bellcranks to the steering knuckles.

BODY, WHEELS AND TIRES. The X-Cellerator's factory-finished body looks great (just look at the pics), but it can be difficult to remove and install because the rear body posts are very close together and the clips are small. The white window decals aren't

production; they'll be replaced by blacked-out windows, like those found on the Nitro X-Cellerator.

The electric X-Cellerator lifts its wheels and tires directly from the nitro truck. The fronts are a classic ribbed design, and the rears have an aggressive ladder-bar tread that will work well on all sorts of bash-around terrain, if not hard-packed tracks. White dish wheels are standard, and they're interchangeable with Team Losi wheels.

FIND IT

» Go to page 276 for manufacturers' contact information



LIKES

- » Fully adjustable suspension can be tuned to suit varying conditions.
- » Full ball-bearing set.
- » Name-brand electronic gear.
- » Lots of racing features: slipper clutch, ball differential, aluminum shocks and more.

DISLIKES

- » Small body clips and tight rear body-post spacing make body removal difficult.
- » Included motor isn't as racy as the rest of the truck.

THE COMPETITION

RTR STADIUM TRUCK

VEHICLE >> REVIEWED
DuraTrax Evader ST >> 2.02
Team Associated T4 RTR
Team Losi Triple-XT Sport II

YOU'LL NEED

Stick pack
Charger
Transmitter batteries

WE USED

Reedy Rated X sport pack
MRC Super Brain 959
Gold Peak 2000mAh AA
NIMH rechargeable





PERFORMANCE

Because of its racing features, the X-Cellerator deserved a run at a racetrack. I first tested the truck at Xtreme RC in New Milford, CT. In stock trim, it handled exceptionally well. With the tame 540 silver-can motor, the truck tracked straight and cornered perfectly with no signs of oversteer. A hotter motor would bring out its true track-handling ability, but be conservative if you decide to upgrade because the included Mtroniks Eco 20 speed control isn't rated for motors with fewer than 20 turns. You should be able to run a 19-turn motor (such as a Trinity Chameleon) without any trouble; just don't overgear it. With the right tires, the X-Cellerator should be easy to tune for race-worthy handling. Thanks to its turnbuckle linkages and threaded-body shocks, it's as adjustable as any competition truck.

For the rest of the testing, I put the

X-Cellerator through a variety of bash-around challenges at the local skatepark. The truck launched out of a 6-foot quarter pipe and touched down gently on the transfer. It was very easy to control midair with throttle and brake inputs and was a natural jumper when landing all of the big obstacles in the park. It cruised at full speed over the smaller ramps and humps, and the forgiving suspension made sure that it always landed softly—never once did it bottom out or get out of shape. It was a blast to nail the big A-frame jump that sent the truck's nose skyward. I tapped the brakes in midair to get it to nose-down for a perfect landing.

As it ran from obstacle to obstacle, the XTM truck carved nice predictable turns, and its dirt-specific tires gripped surprisingly well on the asphalt, particleboard and metal surfaces. When landing off the biggest jumps, I could

hear the dual-pad slipper clutch chirp as it saved the transmission from abrupt impacts. A few spectacular cartwheels, over-rotations, under-rotations, crashes into the fence and backflips down the quarter pipe caused no damage, so the X-Cellerator earned bonus points for durability.

RAJAR TESTING



THE VERDICT

The XTM Racing electric X-Cellerator arrives as ready to run as they come, and it delivered more than expected in almost every category. The truck couldn't be easier to set up and drive. It will keep beginners satisfied as they hone their driving skills, while the fully adjustable suspension and racing features will keep experienced drivers happy (although they will want to upgrade to a faster motor). The X-Cellerator is a durable, versatile stadium truck that's equally well suited to first-timer bashing and entry-level racing when you add the right tires and motor for your track.

RATINGS

Instructions	●●●●●●●●	□	Our first-run sample didn't include a manual.
Included electronics	●●●●●●●●	□	The Hitec radio gear and Mtronik speed control are top quality for an RTR.
Parts fit & finish	●●●●●●●●	□	Very good overall; only the unlabeled motor is a style downer.
Turn in	●●●●●●●●	□	On the slow side, but there's suspension-tuning potential.
Corner speed	●●●●●●●●	□	Holds the line, but the low-powered motor can't keep up the speed.
On-power steering	●●●●●●●●	□	Slight push (understeer) only on very loose dirt, otherwise, it's neutral.
Braking	●●●●●●●●	□	Good feel and enough power to lock up the rear tires and slide the truck, if you need to.
Bump handling	●●●●●●●●	□	Handles bumps well on most surfaces.
Jumping	●●●●●●●●	□	A natural jumper in stock trim; unlimited tuning potential.

Best buyer: Performance-minded off-road fans and first-time racers.

GS Racing

SVT Pro





GS Takes Truggies to the Next Level

THERE'S NO DENYING THAT MONSTER TRUCK RACING IS HERE TO STAY, and this is exactly why GS Racing has released its SUT Pro: a hopped-up, low-slung truggy (as trucks with $\frac{1}{8}$ -scale buggy-style chassis are known) that's ready for track action. The SUT Pro is the latest $\frac{1}{8}$ -scale 4WD truck designed for hot laps, and it comes with an array of handsomely machined aluminum upgrades, trick carbon-fiber parts and a chassis design that gets the truck's mass as low as possible. As a diehard racer, I couldn't pass up the opportunity to take the SUT Pro to the track to find out just how good GS Racing's best monster really is.

KIT FEATURES

CHASSIS. The SUT Pro's chassis is made of 3.5mm 6061 anodized aluminum, and it is shared with GS Racing's Storm Pro 1/8-scale buggy. It has 8 degrees of kick-up and slightly radiused sides, and machined-aluminum braces are secured to the chassis' front steering plate and rear bulkhead for strength and rigidity. The layout of the electronics, engine and fuel tank is exactly like the one you'd find on an 1/8-scale buggy. The fuel tank sits just in front of the engine on the left side of the chassis, and the radio gear and servo tray sit on the right side as balance. The servo tray, center diff brace and steering brace are all made of 3mm carbon fiber that not only looks trick, but is extremely light as well. There's enough room in the radio box for a protective foam that reduces vibration and prevents the electronics from rattling around.

DRIVETRAIN. The SUT Pro has sealed, 6-gear front, center and rear differentials. I recommend using GS Racing's 10,000WT up front, 30,000WT in the center and 3,000WT in the rear. According to GS Racing pros, those viscosities work best on most surfaces. The center diff is outfitted with a 54-tooth steel spur gear, and it's spun by the engine's 13-tooth, hardened-steel clutch bell. Steel universals are extended from the center, and front and rear differentials give the SUT Pro full-time 4WD. All of the Pro's drivetrain components move smoothly on metal-shielded ball bearings. The two vented-steel rotors that are connected to the center-diff outdrives are sandwiched between padded calipers to provide progressive braking. A brake set on each side of the center diff allows you to adjust front and rear brake bias; that's a necessary tuning tool for racing.

ENGINE AND ACCESSORIES. The SUT Pro is a racing kit, so it doesn't come with an engine. I decided to go with the tried-and-true GS Racing R25MT (non-pull-start version) because I have experience with the engine and know it can rip. The

BUILDING & SETUP TIPS

The SUT Pro went together as expected with no excessive slop and only a little binding, but the instructions were vague. The truck's screws and nuts are packaged in just a couple of bags, so they're easy to lose and get mixed up. Organize the screws and nuts into groups: machined, self-tapping, large, small, etc., and the building steps will be much easier. Here are a few tips that will help you through the build.

FOR ALL STEPS > Read the supplemental instructions before you build the truck, and know when to refer to them.

STEP 11 > FRONT-SUSPENSION UPPER ARMS

The upper arms of my SUT Pro were bound up once installed. Use a hobby knife to remove excess material from both sides of the inner portion of the upper arms.

STEP 17 > INSTALLING THE FRONT LOWER-SUSPENSION ARMS

Be sure to use Loctite on the 4mm screws that secure the inner hinge pin mounts, but do not overtighten the nuts. They can snap the screws if they are overtightened.

STEP 35 > FUEL TANK

I installed Team Associated O-rings under the screws that secure the fuel tank. This allows the tank to move slightly without cracking. Tighten the self-tapping screws until they are snug.

STEP 39 > FILLING THE SHOCKS

Move the shock shafts up and down several times after you have filled the bodies with fluid and have installed the caps. A little fluid should bleed out of the holes in the caps, but if it continues to leak out, there's a good chance the bladders inside the caps are kinked or haven't been seated properly. Check to make sure that the bladder rims are seated properly in the caps.

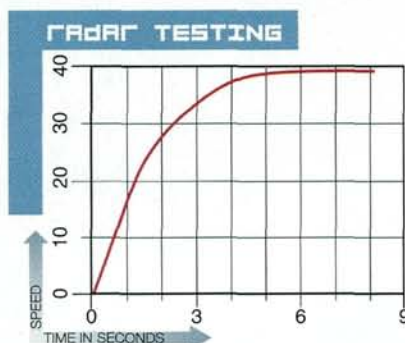
mini test

GS Racing R25MT

The R25MT is an economically priced mill that has tons of power everywhere—evidenced by its long acceleration curve. This is the second R25MT mill I have run, and I found that both engines had been set too rich by the factory for break-in. Each time, I had to lean out the bottom end 1/2 a turn so the engine wouldn't load up and then shut down during the break-in process.

Take your time during break-in, and make sure that you run at least six to seven tanks through it before you "race-tune" it. If you take care of this powerplant, it can push your truck to speeds as high as 39mph, as it did with our test truck.

> Engine performance will vary with gearing, vehicle, fuel and test conditions.



Distance (in feet) traveled in:	0-132 ft. time	Speed at 132 ft.
1 SEC. > 16.7	3.89 SEC.	30.8 MPH
2 SEC. > 58.9		
3 SEC. > 120.1	Time to top speed	Top speed
4 SEC. > 191.5	4.83 SEC.	39 MPH
5 SEC. > 250.2		



Although the 3.5mm chassis doesn't flex much, two machined-aluminum braces eliminate virtually all chassis flex. The servo tray and front steering brace are made of light-weight carbon fiber.

The radio box has just enough room for the receiver and receiver pack. As a safety measure, I installed three small zip-ties to prevent the lid from popping off.



SPECIFICATIONS

MANUFACTURER GS Racing
MODEL SUT Pro
DISTRIBUTED BY GS Racing
SCALE 1/8
PRICE \$500
Price varies with dealer

DIMENSIONS

Wheelbase 12.6 to 12.8 in.
(320 to 325mm)
Width 13 in. (330mm)

WEIGHT

Total, as tested 150.1 oz. (4,255g)

CHASSIS

Type Machined plate with
radiused plastic mudguards
Material 3.5mm 6061 anodized,
gunmetal-gray aluminum

DRIVETRAIN

Type Shaft-drive with three
silicone-filled differentials
Primary 54T spur/13T clutch bell
Transmission ratio 3.31:1
Final drive ratio 13.74:1
Driveshafts Universals
Differentials Silicone-filled with
bevel gears
Bearing type Metal shielded

SUSPENSION

Type Lower A-arm with
adjustable camber link
Shocks Anodized-aluminum body
with Teflon shaft guides and
bladder seal

WHEELS

Type White one-piece, split 5-spoke
with 17mm hexes

TIRES

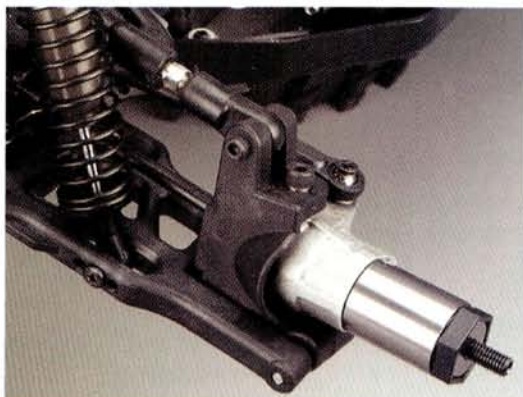
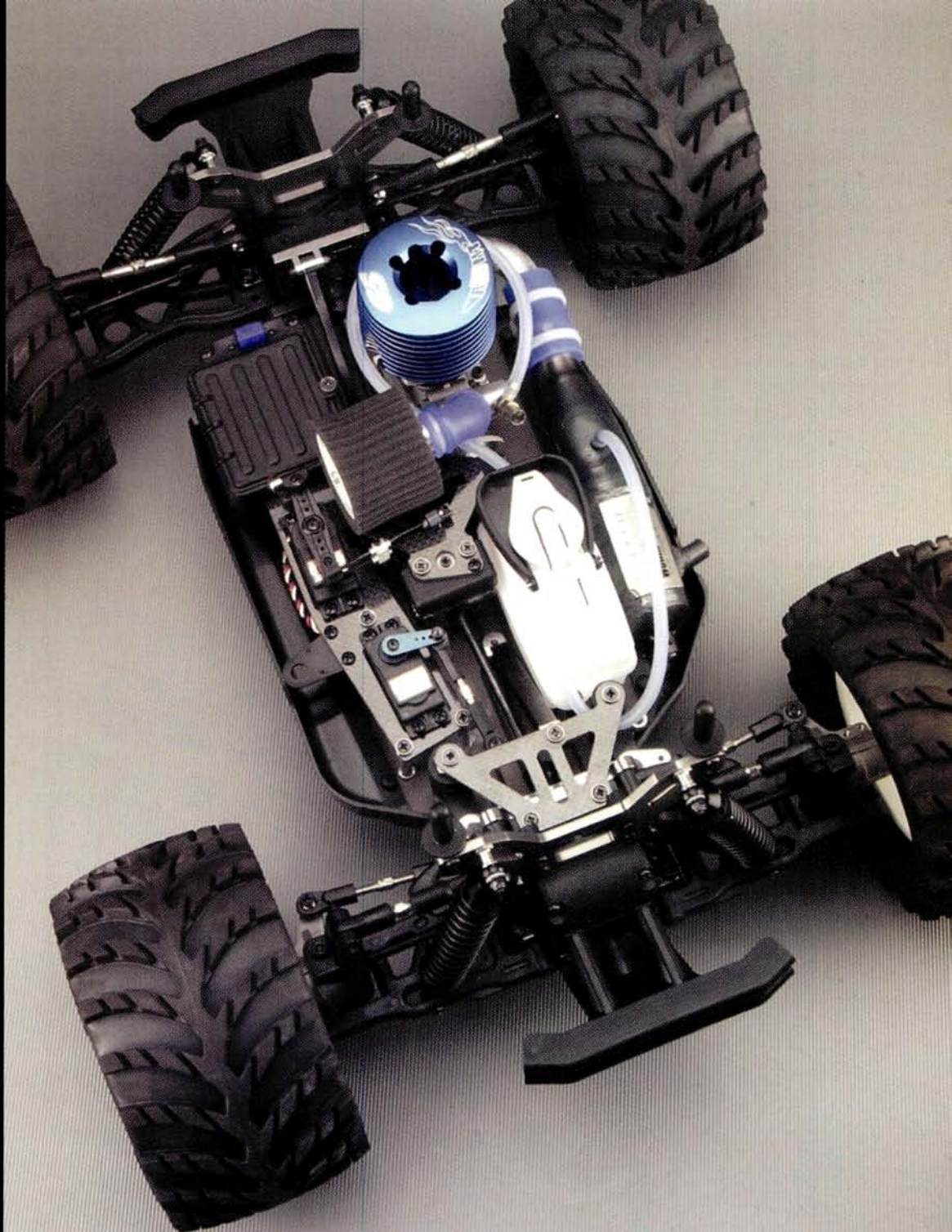
GS Racing Road Ripper with V-type
tread pattern

ELECTRONICS

Not included

ENGINE, PIPE & MANIFOLD

Not included



Sturdy front and rear bumpers protect the Pro in crashes. The meaty 4mm shock towers are just about bend-proof.



You can position the Pro's big shocks in a variety of locations to fine-tune the suspension. For extra stability, the long wheel adapters stretch the truck out as wide as possible.

ABC-constructed engine is a rear-exhaust mill that comes with a slide carburetor and a large, blue-anodized, 10-fin cooling head. I paired the engine with Phantom's natural-finish tuned pipe, and the truck was able to get up to 43mph! The Pro kit comes with the necessary engine mounts for securing the engine and a pipe hanger to prevent the pipe from rattling around. A provided snorkel-type air filter with an external plastic sheath protects your engine's carb from dirt and grime that might harm it. The truck's 125cc fuel tank has a spring-loaded cap and an internal stone filter to help keep debris out of the fuel line.

SUSPENSION AND STEERING. Four large 1/8-scale shocks handle the bumps and jumps for the racy SUT Pro. The top-filled shocks are outfitted with aluminum bodies, stiff springs that work for almost any application and 3.5mm shock shafts. Silicone booties help keep dirt out and the shock movement smooth. The wide front and rear shock towers are made of 4mm 7071 aircraft aluminum. The towers and beefy lower suspension arms have multiple mounting holes for a number of shock-mounting locations, so it's easy to fine-tune the Pro's suspension for various surfaces. One of the Pro's cool features is that the suspension arm's inner hingepins are held in place by setscrews that are threaded into

the front and rear pivot blocks. This ensures that the 4mm hardened-steel hingepins won't come loose. Upper, polished-steel turnbuckles allow you to adjust front and rear camber, and the front lower turnbuckles let you adjust front toe. A standard dual-bellcrank steering system with an aluminum drag link turns on metal-shielded bearings to provide silky-smooth proportional steering. A heavy-duty servo-saver built into the right bellcrank protects the steering servo.

BODY, WHEELS AND TIRES. A clear, short-nose truck body is included with the Pro, so painting it is up to you. I had *RC Car Action's* longtime paint slinger Bill Zegers of Zegers RC Graffixx whip up this tight scheme. Large, 6-inch Road Ripper tires with a V-type directional pattern are in the box, but don't expect them to be the hot setup at the track. They're great for breaking in the engine and tearing up grass and asphalt, but knobbies will work best on dirt. White, one-piece, split 5-spoke wheels and foam inserts can be paired with the Road Rippers or used with a set of racing tires. The SUT Pro accepts the popular 14mm hex wheels used by Maxx-type wheels, or you can mount 17mm hex wheels using the included adapters. I ran a set of mounted TRC Micros for my test; they're about an inch narrower than standard tires.



LIKES

- › Aggressive, yet stable, handling.
- › Hard-hitting acceleration.
- › As durable as big trucks come!

DISLIKES

- › No diff or shock fluid is included.
- › Instructions need to be refined.

THE COMPETITION

RTR STADIUM TRUCK

VEHICLE >> REVIEWED

Associated Monster GT >>	12.03
HPI Savage 25 >>	07.04
Team Losi LST >>	11.04
XTM Mammoth >>	02.04

YOU'LL NEED

Transmitter & receiver
Receiver pack
Servos (2)
Engine
Fuel
Shock fluid
Silicone diff fluid
Tire glue

WE USED

Airtronics backlit M8
OFNA 1400mAh
Hitec 5945MG
GS Racing R25MT
O'Donnell 30%
GS Racing 30WT
GS Racing 10,000WT (F), 30,000WT (C), 3,000WT (R)
Team Losi Blue CA (thick)





PERFORMANCE

I used the stock Road Ripper tires and wheels while breaking in the R25MT engine, and after half-a-dozen tanks, I set 'em aside and headed for the track with the TRC Micros. I knew the Road Rippers would struggle on a prepped track, since they don't have knobs. I have used the TRC Micros before and knew they were the hot setup for a damp track.

My first stop was Hot Rod Hobbies; it's best known for $\frac{1}{10}$ -scale racing. I wanted to see whether the Pro could make its way through its relatively tight course. Since the sky was overcast and it had rained a few days prior to my test, the track was slightly damp, yet hard-packed. From the get-go, the Pro had tons of traction; I attribute most of it to the TRC Micro tires and to the optimum track conditions. I was also immediately impressed with how

tightly the truck could turn. The track isn't as wide as most nitro tracks, but the grunt of the Hitec 5945 servos and capable Pro didn't care about that. It wove in and out of the corners just like a smaller $\frac{1}{10}$ -scale truck would. The jumps at Hot Rod were fun with the Pro, even though it seemed to jump just a little nose-high. I set the brakes rather modestly with almost no stopping force on the front wheels. This allowed me to correct the truck in the air without the truck diving forward too abruptly. The Pro downsidied the jumps with ease, and although I refueled the truck trackside several times before pulling off the track, there was minimal brake fade.

Next, I headed to Marvin's Hobbies where $\frac{1}{8}$ -scale buggies create ruts and potholes that can really test a nitro truck's capabilities. The

gigantic track at Marvin's lets you top out your truck so you can see how fast it truly is; our radar gun read 43mph after several passes on the long straightaway. The large $\frac{1}{8}$ -scale jumps and rutted track, however, were rough on the SUT Pro. The larger bumps of the track bounced it around quite a bit. The setup I used was adapted from my RTR version of the SUT and from a couple of tips from GS pros; it gave the truck a very neutral feeling. I would have liked the Pro to carry more speed through the whoops and ruts, but I knew its shorter-than-average wheelbase would inhibit it in those sections. Although the truck was bucked around a bit, it did jump better than other monster trucks I have raced. It also cornered significantly better, and that is where you can make up most of your time.

THE VERDICT

The SUT Pro is a no-compromise racing monster truck that comes with all of the light-weight carbon-fiber, machined-aluminum hardware and other hop-ups that track-bound racers gotta have. These parts make the truck stronger, lighter and look cooler, which should be reasons enough to go out and buy a Pro. If bought separately, these parts would cost a lot more than the kit. The real advantage of the Pro is the confidence you gain when you hit the track with a purebred racer you built yourself.

FIND IT

» Go to page 276 for manufacturers' contact information

RATINGS

Instructions	●●●●●●●●●●	E.S.	You have to use two manuals to complete the build; inexperienced builders may have trouble.
Parts fit and finish	●●●●●●●●●●	E.S.	Everything went together well, but the front suspension needed some hand-fitting.
Turn-in	●●●●●●●●●●	9	The SUT dived into corners aggressively but might be twitchy for some.
Corner speed	●●●●●●●●●●	9	The truck can shoot in and out of corners thanks to its low stance and short wheelbase.
On-power steering	●●●●●●●●●●	7	Pushes more than usual when exiting corners and while getting back on the gas.
Acceleration	●●●●●●●●●●	10	Accelerates like a rocket thanks to its spot-on gearing and 3-shoe clutch.
Bump handling	●●●●●●●●●●	E.S.	Really rough stuff can unsettle the Pro.
Jumping	●●●●●●●●●●	E.S.	Has a tendency to jump nose-high, but that's easily controlled with the brake.
Braking	●●●●●●●●●●	10	The four vented rotors with padded calipers will stop the Pro as fast as you want.

Best buyer: Monster truck racer looking for a podium-capable ride.

DRAWN CAR THINKING

by the RC Car Action team



FEW COMPONENTS CAN TRANSFORM AN ELECTRIC VEHICLE'S FUN FACTOR AS DRAMATICALLY AS A SPEED CONTROL. WELL, TO BE HONEST, A HOTTER MOTOR IS THE NUMBER-ONE WAY TO LIVEN UP AN ELECTRIC RIDE, BUT THAT HOTTER MOTOR IS GOING TO REQUIRE A SPEED CONTROL THAT CAN HANDLE IT, SO WE'RE RIGHT BACK TO SPEED CONTROLS—REVERSING MODELS, TO BE EXACT, SINCE MOST OF US LIKE BEING ABLE TO BACK OUT OF TROUBLE AND DO ROCKFORDS AND STUFF. WHETHER YOU ARE LOOKING FOR A SIMPLE REVERSING SPEED CONTROL TO REPLACE A MECHANICAL UNIT, OR YOU WANT TO GET A HIGH-END SPEED CONTROL TO SERVE DOUBLE DUTY BETWEEN BACKWARD BASHING AND RACING, LOOK NO FURTHER THAN THE NEXT FEW PAGES. ALL OF THE SPEED CONTROLS HERE ARE DESIGNED TO BE USED WITH STANDARD 540 BRUSHED MOTORS (NO BRUSHLESS OR "MICRO" SPEED CONTROLS). THE SPECS SHOWN ARE SUPPLIED BY THE MANUFACTURERS AND PRICES VARY WITH DEALER. NOW PICK A SPEED CONTROL.

FIND IT

>>> Go to page 279 for manufacturers' contact information

GLOSSARY

Cells. How many cells do you want to run? Make sure that the speed control you choose can handle the number of batteries you plan to use.

Motor limit. Manufacturers offer motor limits only as a guide. Even if your speed control is rated for a 15-turn, you can smoke it with a 15-turn if you abuse it. And remember, the limit means you must use a motor with the specified number of turns or *more*—not less. The lower the number of turns, the more powerful the motor and the more strain it puts on the speed control.

Reverse lockout. If you want to race occasion-

Airtronics F-2000

The F-2000's small case makes it an easy fit in any vehicle, and it has some interesting features. We especially like the three frequency settings, which are accessed by a simple external switch. You can select "Quick" (500Hz), "Normal" (1500Hz) and "Mild" (2500Hz) settings. Reverse lockout makes it a good choice for occasional racing—and not just in stock class. This speed control is rated for mod motors down to 13 turns.

Cells	6 or 7
Reverse lockout	Yes
Reverse mode	Delay
Motor limit (turns)	13
Frequency (Hz)	500/1500/2500Hz
On-resistance (ohm)	INS
Protection	SC, TO
Solder tabs	No
Warranty	90 days
Footprint	



DuraTrax Intellispeed

The IntelliSpeed line is very affordable but still full of features, including anti-lock braking (ABS) and adjustable reverse-delay time. The ABS mode doesn't actually sense impending loss of traction, but it does let you adjust the amount of automatically applied brake modulation. The IntelliSpeed reversibles differ only in motor limit and price, with the exception of one extra feature for the Auto Sport: automatic setup. Just plug it in, and the speed control sets itself automatically.

	Auto Sport	16T	12T	8T
Cells	4 to 7	6 or 7	6 or 7	6 or 7
Reverse lockout	No	Yes	Yes	No
Reverse mode	Delay	Delay	Delay	Delay
Motor limit (turns)	18	16	12	8
Frequency (Hz)	1000	1000	1000	1000
On-resistance (ohm)	0.007	0.0046	0.0035	0.002
Protection	TO	TO	TO	TO
Solder tabs	No	No	No	No
Warranty (days)	120	120	120	120
Footprint	42x38mm	42x38mm	42x38mm	42x38mm
Weight (with wires)	60g	62g	69g	72g
Price	\$40	\$50	\$65	\$75

The IntelliSpeeds are a little chunky by current standards, but they're feature-filled and inexpensive.

Dynamite Tazer

"Set it and forget it" is the name of the game with the Tazer, which has high-performance features such as an extra-high 7800Hz operating frequency for supersmooth throttle feel and mod-motor capability down to 15 turns. Reverse can be set to engage with a gear-saving delay, or you can choose the no-brakes, instant-reverse mode for stunt driving.

Cells	6 or 7
Reverse lockout	No
Reverse mode	Delay
Motor limit (turns)	15
Frequency (Hz)	7800



REVERSE MODES EXPLAINED

Double pump. When you first apply up-trigger, the speed control gives proportional brake control only. Reverse is activated only when you return the trigger to neutral and then reapply up-trigger for proportional-reverse throttle. This system virtually eliminates the chance of accidentally grabbing reverse, but you can quickly double pump the trigger for reversing stunt action.

Futaba MC series

There are lots of features packed into the MC series speed controls' small cases. Our favorite is the power-on alarm found on the 230CR and 330CR; if you turn off your radio before you turn off the speed control, it will beep to let you know the power is still on. The MC400CR is the raciest (and most expensive) model, with the highest frequency and lowest motor limit of the group.

	MC230CR	MC330CR	MC400CR
Cells	6 or 7	6 or 7	4 to 7
Reverse lockout	Yes	Yes	Yes
Reverse mode	Double pump	Double pump	SS
Motor limit (turns)	20	13	10
Frequency (Hz)	1500	1500	2500
On-resistance (ohm)	0.0035	0.001	0.00175
Protection	SC, TO	SC, TO	SC, TO
Solder tabs	No	No	No
Warranty	1 year	1 year	1 year
Footprint	33x32mm	33x32mm	25x25mm
Weight (with wires)	44g	44g	35g
Price	\$50	\$70	\$175



Hitec's speed controls have big ol' heat sinks, and the EZXs use integrated switches for a neater install.

Hitec EZX series

Hitec's new EZX series controls have built-in power switches, so there's one less thing to tape onto the chassis. They all feature race-friendly reverse lockout, high-frequency operation and pushbutton setup. Motor limit and price are the deal makers, but even the "most expensive" of Hitec's line is still highly affordable (and 10-turn capable!).

	EZX-R	EZX-R Pro	HFX-R
Cells	6 or 7	6 or 7	6 or 7
Reverse lockout	Yes	Yes	Yes
Reverse mode	Delay	Delay	Delay
Motor limit (turns)	23	17	10
Frequency (Hz)	1900	1900	1900
On-resistance (ohm)	0.032	0.012	0.008
Protection	TO	TO	TO
Solder tabs	No	No	No
Warranty (years)	2	2	2
Footprint	40x34mm	40x34mm	41x35mm
Weight (with wires)	59g	60g	63g
Price	\$45	\$55	\$75

JR Racing SC-1

JR's SC-1 is all about simplicity: plug it in, hit the pushbutton setup and you'll never have to think about it again. But don't mistake "simple" for "low performance" because the SC-1 can handle mods down to 15 turns.

Cells	6 or 7
Reverse lockout	No
Reverse mode	Double pump
Motor limit (turns)	15
Frequency (Hz)	1500
On-resistance (ohm)	0.0035
Protection	TO
Solder tabs	No
Warranty (years)	3
Footprint	36 x 26mm
Weight (with wires)	53g
Price	\$75



Look at that heat sink: you could cook a burger on that grill! The SC-1 definitely won't be overheating anytime soon.



The EZ-1000 is preset at the factory; just use your radio's throttle trim to set neutral.

KO Propo

KO is very well-known for its high-quality, Japanese-made gear (the radios, in particular), and the KSC-series speed controls maintain that rep. They're extra small and have unique Punch and Brake Punch adjustments that allow you to set the amount of throttle or brake the speed control will use as the minimum setting. For example, you could set the least possible throttle for 20 percent of full throttle for a punchy feel, or select 5 percent for smoother control.

	EZ-1000	KSC1000FR	KSC1100FR
Cells	6	6 or 7	6 or 7
Reverse lockout	No	No	No
Reverse mode	Double Pump	Double pump	Double pump
Motor limit (turns)	15	15	10
Frequency (Hz)	INS	1800	1800
On-resistance (ohm)	INS	INS	INS
Protection	TO	TO	TO
Solder tabs	No	No	No
Warranty (days)	90	90	90
Footprint	32x32mm	32x32mm	32x32mm
Weight (with wires)	41g	35g	35g
Price	\$70 (estimated)	\$90	\$110

INS = Information not supplied by manufacturer

LRP F1 series

LRP offers no less than 10 reversing speed controls, so there's gotta be one for you. The A.I. (Artificial Intelligence) series is the latest, and those require no setup at all—pushbutton or otherwise. They don't even have power switches! Just plug it in, and the A.I.-series controller automatically sets itself. The F1-series controllers are officially discontinued but still widely available, and the tiny Quantum-series units bring LRP's world-championship-winning tech to reversing speed controls.



The F1-series controls are built for abuse and still widely available.

	Runner Plus	Reverse	Super Reverse	Pro Reverse
Cells	4 to 8	4 to 7	4 to 7	4 to 7
Reverse lockout	No	Yes	Yes	Yes
Reverse mode	50/50	SS	SS	SS
Motor limit (turns)	17	15	12	None
Frequency (Hz)	1250	2100	2300	2500
On-resistance (ohm)	0.017	0.012	0.008	0.0041
Protection	SC, TO	SC, TO	SC, TO	SC, TO
Solder tabs	No	No	No	No
Warranty	Lifetime	Lifetime	Lifetime	Lifetime
Footprint	41x41mm	41x41mm	41x41mm	41x41mm
Weight (with wires)	58g	60g	67g	67g
Price	\$55	\$60	\$80	\$100

LRP A.I. Automatic series



No setup, no switch—just plug them in, and the A.I. controllers are turned on and tuned up.

	Reverse	Pro Reverse	Bullet Reverse
Cells	4 to 7	4 to 7	4 to 7
Reverse lockout	No	No	No
Reverse mode	SS	SS	SS
Motor limit (turns)	13	10	None
Frequency (Hz)	High, unspecified	High, unspecified	High, unspecified
On-resistance (ohm)	0.16	0.107	0.048
Protection	SC, TO	SC, TO	SC, TO
Solder tabs	No	No	No
Warranty	Lifetime	Lifetime	Lifetime
Footprint	42x42mm	42x42mm	42x42mm
Weight (with wires)	61g	65g	68g
Price	\$55	\$70	\$90

LRP Quantum series



LRP's world-championship-winning technology meets reversing convenience in the Quantum series. Not cheap, but certainly great stuff, and you get a lifetime warranty.

	Reverse	Super Reverse	Pro Reverse
Cells	4 to 7	4 to 7	4 to 7
Reverse lockout	Yes	Yes	Yes
Reverse mode	SS	SS	SS
Motor limit (turns)	16	13	7
Frequency (Hz)	2100	2300	2500
On-resistance (ohm)	0.003	0.0023	0.00175
Protection	SC, TO	SC, TO	SC, TO
Solder tabs	Yes	Yes	Yes
Warranty	Lifetime	Lifetime	Lifetime
Footprint	25x25mm	25x25mm	25x25mm
Weight (with wires)	35g	36g	37g
Price	\$90	\$140	\$160



All of Mtroniks' speed controls have an epoxy-sealed construction that makes them waterproof.

Mtroniks Sonik 4 series

Mtroniks's Sonik 4 line covers everything from basic controllers (Eco 20) to wild dual-motor units such as the Super E-Truck, which can handle up to 12 cells! All the Mtroniks speed controls have reverse lockout, pushbutton setup and reverse disable, but you'll need a little soldering savvy to install the RV Max and Super-E-truck models because the included power wires are not soldered to the speed control for you. The Mtroniks controls are also waterproof; if the unit gets wet, it will shut down until it's safe to operate.

	Eco 20	RV15	RV Max	Super E-Truck
Cells	4 to 8	4 to 8	4 to 8	5 to 12
Reverse lockout	Yes	Yes	Yes	Yes
Reverse mode	Delay	Delay	Delay	Delay
Motor limit (turns)	20	15	8	None
Frequency (Hz)	2000	2500	3300	3300
On-resistance (ohm)	0.07	0.07	0.02	0.0068
Protection	T0	T0	T0	T0
Solder tabs	No	No	Yes	Yes
Warranty (years)	2	2	2	2
Footprint	35x35mm	35x35g	35x35mm	68x35mm
Weight (with wires)	49g	53g	57g	101g
Price	\$40	\$50	\$80	\$150



IFMAR ELECTRIC ON-ROAD WORLDS TAMIYA AND YOKOMO FASTEST IN FLORIDA

Kissimmee, FL: Masami Hirosaka of Japan, arguably the greatest RC driver ever, won another IFMAR World Championship title in 1/12-scale to put his grand total of world titles at 14. He top qualified the Worlds with his Reedy-powered Associated/Yokomo RC12L4. Interestingly, Masami won only one of the three A-mains, but his combined finishes were good enough to earn him the title.

In 1/10-scale Touring, Tamiya/Team Orion phenom Marc Rheinard was in a class of his own. Rheinard top qualified four of the possible six rounds—a remarkable feat at the Worlds (particularly for a guy who's just 17 years old). In the triple-A-main format, Rheinard won the first and third Mains to take home the world championship. Second went to HPI/Team Orion driver Atsushi Hara, and HPI/LRP driver Daisuke Yoshioka finished third. Full race coverage in the next issue!

Tamiya/Team Orion factory driver Marc Rheinard enjoys the view from the top step. Never heard of him? Get used to hearing his name.



PAVIDIS EXCLUSIVE WITH KYOSHO

Looks as if Mark Pavidis has to turn in his A-Team badge because he has decided to run exclusively for Kyosho for the '05 season. Will Kyosho jump back into electric off-road? Or will they open a new facility in Southern Cali as has been rumored? We don't know for sure, but we'll keep you posted.

"OK if I keep the shirt?"

IFMAR NITRO ON-ROAD WORLDS: BERTIN! KYOSHO! SIRIO!

Sao Paulo, Brazil: Adrien Bertin of Luxembourg wrapped up a big Worlds win for Kyosho, but he wasn't the only guy lined up to cross the finish line with a K-car. Eight of the top 10 drivers in the A-main were running the latest V-One RRR, and at the end of the race, the top five spots all went to Kyosho drivers. Japan's Takaaki Shimo and Chris Tosolini of the U.S. took home second and third respectively. Bertin was able to put two laps on second-place Shimo and more than five laps on the rest of the field in the hour-long Main. Detailed race coverage in the next issue!



Adrien Bertin, fightin' the power.

ORION/HPI TC CLASSIC: RHEINARD WINS AGAIN!

The Seventh Annual Team Orion/HPI Touring Car Classic went off in Zillisheim, France, just one week after the Worlds, and newly crowned champ Marc Rheinard wasted no time proving that his win was no fluke. Marc TQ'd the event and won the first two A-mains on the way to a convincing win with his Orion-powered Tamiya 415. In fact, he was running his new Marc Rheinard Worlds Edition Revolution motor—just a little perk for winning the Worlds. Fellow Team Orion drivers Marc Fischer and Steen Graversen followed Mark to finish second and third.

"Is this hat cool?
I can't tell."





Endless Summer Classic top qualifiers (left to right): Mark Santa Ines (2WD Stock), Scott Howard (Sportsman Truck), Shawn Bowie (4WD Mod & 2WD Sportsman), Joe Guerzon (2WD Mod & Mod Truck), Steven Hartson (Stock Truck).

PRO-LINE ENDLESS SUMMER CLASSIC

The winners of each class are listed at right, but we have to give an honorable mention to Almond McClain who competed with a 20-year-old Team Associated RC10—with the 6-gear tranny and an antique Novak T1 ESC, no less. He had no problems getting the buggy around the track, and the car finished every qualifier and each of the triple A-mains without a glitch.

RESULTS

Scott Howard	Sportsman Truck
Steven Hartson	Stock Truck
Joe Guerzon	Mod Truck
Shawn Bowie	2WD Sportsman
Mark Santa Ines	2WD Stock
Joe Guerzon	2WD Mod
Mike Braun	4WD Mod

RACERS' RIDES

Travis Amezcua » Nissan Titan

Travis Amezcua rolls around Southern Cali in this brand-new, lifted four-door Nissan Titan. Although Travis doesn't race monster trucks, he does like rolling around town in one. His Titan has an 8-inch CST lift kit with 35-inch BF Goodrich all-terrain tires and Center Line rims.



A 6-disc Roxford Fosgate CD changer holds an array of Peanut's favorite music, which usually consists of Eminem, 50 Cent and other rap groups. The 10-speaker system hits hard, which, in addition to heated-leather seats, will attract several lady friends. The truck may be clean in this picture, but it's usually covered in dirt and sand from party trips to the famous Glamis Dunes.



TRINITY'S CHINESE CONNECTION

Trinity's Chinese team (who knew?) TQ'd and won the China National Championship Race's Electric Mod class. The race was run on rubber tires, and drivers from all over China participated, says Trinity. Fu Weng Long (right) took the trophy, and Joe Deng Jun (left) was the top qualifier. His secret? "All I did was avoid hitting the wall. The Great Wall! Get it? China? Great Wall?"

TRACK WATCH

THUNDER ALLEY RC ■ BEAUMONT, CA

Thunder Alley's all-new 1/8-scale, 1/10-scale and monster truck off-road nitro track is nestled right in the heart of Noble Creek Park so spectators can get in on the action. High-output stadium lights provide "daytime-like" visibility after dark, and covered pits, permanent pit tables with electrical outlets and "real" bathrooms (no Porta-Potties) make Thunder a sweet place to compete. And the club usually barbecues at every race! For more information, visit thunderalleyrc.com.

To submit your track to "Track Watch," email 300dpi TIFF or JPEG images and a description to racernews@airage.com.



Steve Slayden's Traxxas Revo

RACE: RC PRO SERIES SOUTHERN DIVISION CHAMP

EQUIPMENT

Transmitter: Hitec CRX

Receiver: Hitec DCX

Steering servo: Hitec HS-5925MG

Throttle servo: Hitec HS-525MG

Fuel: Traxxas Top Fuel 33%

Engine: TRX 2.5R

Pipe: TRX single chamber (prototype)

Clutch: Stock

Glow plug: Traxxas 3232

Tires: Pro-Line Bow Tie 40-series

Body: Pro-Line Crowd Pleazer

Gearing: 16/38 (w/close-ratio 2-speed)

SETUP

	FRONT	REAR
Camber	1 deg. negative	1.5 deg. negative
Caster	15 deg.	—
Bump steer/reactive toe angle	Upper	Mid
Toe-in	1 deg. out	1.5 deg. in
Ride height	Lower arms level	Arms slightly above level
Shock fluid	50WT	50WT
Shock piston	No. 1	No. 2
Shock spring	Orange dot 96mm	Gold dot 96mm
Rockers	P2	P2
Pushrod location on lower arm	Middle hole	Middle hole
Roll-center	Upper hole	Upper hole
Diff fluid	30,000WT (25% filled)	30,000WT (25% filled)
2-speed gear set	40T close ratio	—
Forward-only conversion	Yes (aluminum shaft)	—
Slipper-clutch setting	Medium	—

FACTORY & AFTERMARKET OPTIONS

Traxxas

- GTR hard-anodized, Teflon-coated shocks with titanium-nitride shafts
- Hard-anodized, Teflon-coated aluminum pivot balls
- Hard-anodized, Teflon-coated rocker posts
- 7075 T6 aluminum tubular pushrods

- Forward-only conversion w/aluminum shaft
- Titanium suspension pins
- Titanium axles
- P2 rocker set
- Close-ratio 2-speed gears
- Single-chamber tuned pipe (prototype)
- Oversize and lightened aluminum flywheel (prototype)

Crazy Nut

- Revo MX cooling head

O.S. Engines

- Air filter

Pro-Line

- Mambo wheels (modified)
- 40-series Bow Tie tires
- Crowd Pleazer body



Left: Steve doesn't trust switches, so he plugs the battery directly into the receiver with a battery-connector extension. The optional forward-only conversion makes the Opti-Drive unit unnecessary, so a plastic cover for the radio box is included with the Revo to seal the opening for the Opti-Drive unit. **Right:** according to Steve, this prototype single-chamber tuned pipe increases bottom-end punch. The lightened oversize flywheel makes bump-starting much easier. It's also a prototype.

FIND IT

Go to page 276 for manufacturers' contact information



The natural-finish aluminum chassis is identical to the stock chassis, minus the blue-anodized finish. Steve likes to use the preproduction unit just to be different.

Opposite, top: the custom tubular chromoly toe links are one-offs and are actually lighter than most titanium aftermarket links. The Traxxas red-anodized, 7075 T6 tubular aluminum pushrods are lighter than the stock units but are just as strong.

Opposite, bottom: Steve mounts his personal transponder on the chassis where the second steering servo used to be. If you look closely, you can see the small ballpoint pen springs he installed between the brake rotors for positive brake disengagement. The optional GTR hard-anodized shocks have Teflon-coated hard bodies and titanium-nitride shock shafts.

Factory Driver HOT MOD

Steve has quite a few cool mods on his truck, but the custom fuel-tank thumb grips really grabbed our attention. Steve removed the fuel tank's lid handle and attached a pair of home-made Kydex thumb grips for easier refueling. According to Steve, the stock handle can tuck under the body in a crash and complicate refueling.



5 QUESTIONS

DRIVER: STEVE SLAYDEN

AGE: 31

LAST BIG WIN: RC PRO SERIES SOUTHERN DIVISION CHAMP, PRO-LINE MAXX CHALLENGE

SPONSORS: TRAXXAS, HITEC RCD, BALLISTIC BATTERIES, RD RACING, MAJESTIC BODIES, JOHNNY COOL GUY RACEWAY



WHEN I'M NOT RACING I LIKE TO: SPEND TIME WITH MY GIRLFRIEND JULIE, PLAY GUITAR, DISC GOLF AND WORK ON HOME IMPROVEMENTS AND ... OH YEAH, RENO 911 RULES!

RC CAR ACTION: What do you recommend that Revo owners do to their trucks to improve track handling?

STEVE SLAYDEN: There are just a few basic things that I would recommend right off the bat: firm up the suspension by installing P2 rockers, stiffer springs and thicker shock fluid. Then

select a good, lightweight tire for racing. After that, remove the starter system and the reverse components.

RCCA: Your truck weighs in at 8 pounds—more than 1 pound lighter than stock. What did you do to make your truck so light? Can you make the truck even lighter, or is that not a good idea?

SS: I reduced most of the weight by removing components not needed for racing—namely, the reverse components and the onboard starter system. There are also items that I've replaced with lighter versions. My truck could definitely be lighter. Although there could have been more components removed or modified, I did not want to compromise the truck's ability to endure the rigors of a long Main. For the size and power of the Revo, I feel that 7.5 to 8 pounds is a happy weight for excellent handling and durability.

RCCA: What are some of the most beneficial hop-ups for improving the truck's performance?

SS: Well, I think that it would be most beneficial to install the forward-only conversion and replace the onboard starter with a bump-starter. I also love the P2 rockers for their versatility.

RCCA: You're known for having the fastest T-Maxx trucks around. How much better is the Revo than the T-Maxx when it comes to track performance?

SS: The whole package that you get with the Revo makes it better—handling, tuning options, durability, etc. I love racing my T-Maxx and can put up very fast lap times with it, but the Revo is much easier to drive at a competitive level; everything I need as far as adjustments and tuning options are right there.

RCCA: Would running a big-block provide an advantage?

SS: My TRX 2.5R has been good enough to keep me competitive at any of the tracks I've raced on this year; however, the new generation of large-displacement engines for MTs are built with a light, midsize case. Those are very interesting. I just don't see how using a large, heavy big-block engine would be very beneficial at the track. A smaller, high-output engine is better suited to the Revo. Racing is all about the speed and consistency of lap times.



REEDY TR OF CHAMP

SPONSORED BY HOT ROD HOBBIES • ASSOCIATED • REEDY • PRO-LINE



CAVALIERI CONQUERS ALL!

TRUCK RACE IONS

Story and shots by Jason Sams

Travis Amezcua tested the highly anticipated Spectrum high-frequency module. Its 4-inch antenna is easier to see through than the stock antenna.



IN ITS SIXTH CONSECUTIVE YEAR AT HOT ROD HOBBIES, the Reedy Truck Race of Champions was a record-breaker that attracted more than 260 racers. All of the top Team Losi and Team Associated pros were there, so tension was in the air. Checkpoint Motors, which is run by Steve O'Donnell (O'Donnell Fuels) and Duane Silva made a surprising debut with their new modified motors. Jeremy "Bad Boy" Kortz took a break from running 1/8 scale to run the new motors and to prove that he can still "bring it" no matter what the discipline. The racing action was hot, so find out how it all went down.



FACTORY MODIFIED

Team Losi/Trinity's Ryan "Pudge" Cavalieri and Team Associated/Reedy's Jared Tebo dominated the Factory Mod class. Ryan "Pudge" Cavalieri set the TQ mark with Jared Tebo securing the second spot for the triple-A-main format. In the first two Mains, Cavalieri jumped out and won both to take the overall win. Tebo hung on to second with two second-place finishes in A2 and A3. Surprisingly, Team Losi/Trinity driver Jimmy Babcock grabbed third with two fourth-place finishes.



FACTORY GAS

Cavalieri set the fastest qualifying marks and was again awarded the TQ. Early in

the 45-minute Main, he had trouble and battled near mid-pack. Tebo seemed on course to finish in the lead, but a hard-charging Adam Drake, Ryan Maifield and Cavalieri were on their way. Better pit stops and a little luck put TQ Cavalieri in the lead about halfway through the race. Cagey veteran Drake hoped Cavalieri would crack, but the young racer pulled away to a comfortable lead. When it was over, Cavalieri had won by two laps over Drake, and Team Associated's Maifield took home third.



OPEN MODIFIED

Gabe Boudreau put his Trinity-powered Team Losi MF1 on top during qualifying, but he couldn't get it done in the Mains. Shawn Blackwell capitalized on Boudreau's mistakes and won A1 and A3 with his Banzai-powered Associated T4 to capture the overall win. Eleven-year-old Steven Hartson, who is quickly making a name for himself, put in consistent runs with his Checkpoint-powered Associated T4 and took home second. Alex Fleet's Team Losi MF2 wrapped up third.



OPEN GAS

Trinity/Team Losi pilot and electric-stock racing specialist Cody King was the fastest during qualifying. David Shepard and Frankie Contreras rounded out the top three. Frankie is a fast local racer who has come up the ranks with the help of Trinity pros Matt Francis, Adam Drake and Travis Amezcua. Contreras' time with the seasoned pros paid off: he drove a clean, heads-up race and won. Ryan Dunford and Cody King rounded out the remaining spots on the podium.

19-Turn & Stock Action

The Reedy Race wasn't all about the pros; there were 19-turn and stock classes as well. SoCal fast guy Shawn Blackwell took home first in 19-turn by dominating the A1 and A2 Mains. In Stock Truck, Frankie Contreras TQ'd and won the A1 and A2, which earned him another title. Contreras hangs with several top pros, including Matt Francis, Joe Pillars and Brian Kinwald, so don't be surprised if you see him in more big-race trophy presentations.

CHECKPOINT MOTORS DEBUT



Steve O'Donnell has made a name for himself as a master nitro engine tuner and modifier, and he has now set his sights on electric power with his Checkpoint motors. The motor's end-bells are machined aluminum, which helps pull heat

away from the motor. The prototype motors used in the race were equipped with cylindrical brushes, but the production motors will have more conventional rectangular brushes. O'Donnell says his motors are special because of the brush alignment, which is crucial in reducing arcing. Checkpoint racer Steven Hartson says, "The motors have sick power, and we are able to run them for dozens of runs without cutting the comm or changing the brushes." The motors will be out by the time you read this.



REEDY RULES

FACTORY CLASSES: open to anyone, but factory drivers were generally the only ones who competed in the Factory Classes.

OPEN CLASSES: open to all drivers. Fast experts made the A-mains and turned laps that were only about 0.5 second slower than the factory pros.

SIX ROUNDS OF QUALIFYING: the best six rounds were tallied; the slowest two were throw-outs. The TQ earned 0 points, second got 2 points, third got 3 and so on.

TRIPLE A-MAINS: drivers raced for points (100 for first, 99 for second, etc.). The two best A-main finishes determined the winner.



THE TRACK

HOT ROD HOBBIES, SAUGUS, CA
HOTRODHOBBIES.COM.

SURFACE: dry, hard-packed, slightly broken clay
DIMENSIONS: 140x60 ft.
TRACK BORDERS: 4-in. garden edging

- 1 In front of the drivers' stand is the track's lone straight-away, which leads into a flat sweeper.
- 2 The sweeper is followed by a tight 180-degree turn that empties into a pair of rollers.
- 3 The inside line was fastest over this small double.
- 4 After landing off the double, you must make a 90-degree left turn that takes you over a small plateau.
- 5 A 90-degree left takes you into a descending set of mini-whoops.
- 6 Another 180-degree right-hander leads to a set of tricky doubles.
- 7 The following left turn has a small roller right in the middle of it.
- 8 Pitch your truck sideways after the step-up and head back down a short, slight slope into a wide right-handed 180.
- 9 The small sweeper gave mod guys and gas racers just enough room to nail the throttle to clear the track's 12-foot triple.
- 10 The triple is followed by a deeply banked left turn that leads you to the finish line.

Cavalieri **dominated** qualifying and the **Mains** as well.

INSIDE CAVALIERI'S TRUCKS

Ryan Cavalieri has dominated 1/10-scale electric and nitro truck racing for the past year or so. His father, Lewis, wrenches on his trucks and knows a thing or two about setup.

Team Losi Matt Francis 2

	FRONT	REAR
Shock pistons	57	55
Shock fluid	30	32.5
Shock springs	Blue (buggy rear)	Yellow
Shock limiters	.18 in.	—
Camber links	3B with two washers	1A
Toe	0 deg.	3 deg.
Shock location	In on tower, in on arms	Rear out on arms, out on tower
Ride height	Arms level	Arms level
Front spindle spacing	Middle	—
Rear hub spacing	—	Middle

MODS: Pudge used shortened Lunsford front axles for greater strength and more precise steering.



Team Losi Drake Edition

	FRONT	REAR
Shock pistons	56	56
Shock fluid	30	37.5
Shock springs	Red rear	Orange
	buggy springs	
Front limiters	.12	"A" plastic spacer
Camber links	3B with two washers	2A
Toe	0 deg.	3 deg.
Front shock location	Second hole from inside on tower and middle hole on arms	
Rear shock location	Rear in on arms and out on tower	
Ride height	Arms level	Arms level
Front spindle spacing	Middle	—
Rear hub spacing	—	Middle

MODS: The rear hubs are prototype Drake 2 hard-anodized aluminum hubs that Ryan chose for their strength and additional width. According to Lewis, the extra width produces more traction and stability. Pudge's nitro truck also uses Lunsford narrow front axles.

REEDY TRUCK RACE OF CHAMPIONS

Factory Gas Truck			CHASSIS	ENGINE	FUEL	TIRES	RECEIVER PACK	RADIO
FIN.	QUAL.	DRIVER						
1	1	Ryan Cavalieri	Losi XNT Drake	Trinity/Sirio	Trinity 20%	Losi	Trinity	Airtronics M8
2	6	Adam Drake	Losi XNT Drake	Trinity/Sirio	Trinity 20%	Losi Taper Pins	Trinity	Airtronics M8
3	5	Ryan Maifield	Associated GT	Team Orion Wasp	Black Demon	Pro-Line	Reedy	Airtronics M8
4	10	Marty Korn	Associated GT	O'Donnell	O'Donnell	Pro-Line	Reedy	Airtronics M8
5	3	Jared Tebo	Associated GT	O'Donnell	O'Donnell	Pro-Line	Reedy	Airtronics M8
6	8	Jimmy Babcock	Losi XNT Drake	Trinity/Sirio	Sidewinder	Losi Taper Pins	Trinity	Airtronics M8
7	7	Travis Amezcua	Losi XNT Drake	Trinity/Sirio	Trinity	Losi	Trinity	Airtronics M8
8	9	Philip Atondo	Losi XNT Drake	Team Orion Wasp	Team Orion	Losi	Team Orion	Airtronics M8
9	4	Mike Truhe	Losi XNT Drake	Trinity/Sirio	Trinity	Losi Taper Pins	Trinity	Airtronics M8
10	2	Jeremy Kortz	Associated GT	O'Donnell/Rex	O'Donnell	Pro-Line	Reedy	Airtronics M8

Factory Modified Truck			CHASSIS	MOTOR	BATTERY	TIRES	SPEED CONTROL	RADIO
FIN.	QUAL.	DRIVER						
1	1	Ryan Cavalieri	Losi XT MF2	Trinity D6 10x2	Trinity	Losi	Novak GTX	Airtronics M8
2	2	Jared Tebo	Associated Factory T4	Reedy	Reedy	Pro-Line	LRP	Airtronics M8
3	9	Jimmy Babcock	Losi XT MF2	Trinity D6 10x1	Trinity	Losi Taper Pins	LRP QC2	Airtronics M8
4	6	Ryan Maifield	Associated Factory T4	Reedy	Reedy	Pro-Line	LRP QC2	Airtronics M8
5	10	Adam Drake	Losi XT MF2	Trinity D6 10x2	Trinity	Losi Taper Pins	Novak GTX	Airtronics M8
6	3	Matt Francis	Losi XT MF2	Trinity D6 10x2	Trinity	Losi	LRP QC2	Airtronics M8
7	4	Mike Truhe	Losi XT MF2	Trinity D6 10x2	Trinity	Losi Taper Pins	Novak GTX	Airtronics M8
8	7	Brent Thielke	Associated Factory T4	Reedy 10x2	Reedy	Pro-Line	LRP QC2	Airtronics M8
9	8	Travis Amezcua	Losi XT MF2	Trinity D6 10x1	Trinity	Losi	LRP	Airtronics M8
10	5	Jeremy Kortz	Associated Factory T4	Check Point	Check Point	Pro-Line	LRP	Airtronics M8

Open Modified Truck			CHASSIS	MOTOR	BATTERY	TIRES	SPEED CONTROL	RADIO
FIN.	QUAL.	DRIVER						
1	2	Shawn Blackwell	Associated Factory T4	Banzai 10x2	Franchise	Panther Switches	LRP	Airtronics M8
2	6	Steven Hartson	Associated Factory T4	Checkpoint	Checkpoint	Pro-Line	LRP	Airtronics M8
3	4	Alex Fleet	Losi XT MF2	Trinity D6 11x2	Trinity	Losi	Novak GTX	Airtronics M8
4	5	Frankie Contreras	Losi XT MF2	Trinity D6	Trinity	Losi	LRP	Airtronics M8
5	7	Robert Hoffman	Losi XT MF2	Trinity	Fukuyama	Losi Taper Pins	Novak GT-7	Airtronics M8
6	10	Mark Reel	Losi XT MF2	Banzai 11x1	Franchise	Losi Taper Pins	Novak	Airtronics M8
7	3	John Scott	Losi XT MF2	Team Orion	Team Orion	Losi Taper Pins	Keyence 2000	Airtronics M8
8	8	Christopher Wheeler	Losi XT MF2	Team Orion	Ballistic	Losi	Novak	Airtronics M8
9	1	Gabe Boudreau	Associated Factory T4	Trinity	INS*	Panther/Pro-Line	Novak GT-7	Airtronics M8
10	9	Michael Cometti	Losi MF2	Team Orion V2	Team Orion	Panther	LRP	Airtronics M8

Open Stock Truck			CHASSIS	MOTOR	BATTERY	TIRES	SPEED CONTROL	RADIO
FIN.	QUAL.	DRIVER						
1	1	Frankie Contreras	Losi XT MF2	Reedy handout	Trinity	Losi	LRP	Airtronics M8
2	2	Nick Lasley	Losi XT MF2	Reedy handout	Franchise	Panther Switches	LRP	Airtronics M8
3	9	Shawn Blackwell	Associated Factory T4	Reedy handout	Franchise	Panther Switches	LRP	Airtronics M8
4	3	Steven Hartson	Associated Factory T4	Reedy handout	Check Point	Pro-Line	LRP	Airtronics M8
5	10	Brent Bisbee	Losi	Reedy handout	Team Orion	Losi Taper Pins	LRP	Airtronics M8
6	8	Gary Eyster	Losi XT MF2	Reedy handout	Fukuyama	Losi Taper Pins	Novak GT-7	Airtronics M8
7	6	Chris Higa	Losi XT MF2	Reedy handout	Team Orion	Panther Switches	Keyence Rapida	Airtronics M8
8	5	Robert Hoffman	Losi XT MF2	Reedy handout	Fukuyama	Losi Taper Pins	Novak T-7	Airtronics M8
9	7	Adam Peters	Associated Factory T4	Reedy handout	Reedy	Pro-Line	LRP	Airtronics M8
10	4	Michael Cometti	Losi XT MF2	Reedy handout	Team Orion	Panther	LRP	Airtronics M8

Open 19-Turn Truck			CHASSIS	MOTOR	BATTERY	TIRES	SPEED CONTROL	RADIO
FIN.	QUAL.	DRIVER						
1	2	Shawn Blackwell	Associated Factory T4	Banzai	Franchise	Panther Switches	LRP	Airtronics M8
2	1	Gabe Boudreau	Losi XT MF1	Trinity	INS	Panther/Pro-Line	Novak GT-7	Airtronics M8
3	3	Austin Bishop	Losi XT MF2	Banzai	SMC	Panther	Novak	Airtronics M8
4	6	Alex Fleet	Losi XT MF2	Trinity	Trinity	Losi Taper Pins	Novak FTX	Airtronics M8
5	8	Ryan Dunford	Losi XT MF2	Team Orion	Novak Platinum	Losi Taper Pins	Keyence Zero	KO Propo Mars R
6	9	Pat McCarson	Losi XT MF2	Peak Dynasty	Peak SP2	Losi Taper Pins	Novak GT-7	Airtronics M8
7	7	Aaron Lane	Losi XT MF2	Team Orion	Team Orion	Losi Taper Pins	Novak GT-7	Airtronics M8
8	4	Juan Espinoza	Associated FT T4	Reedy	Reedy	Losi Taper Pins	LRP	KO Propo Helios
9	10	Mark Reel	Losi XT MF2	Banzai	Franchise	Losi Taper Pins	Novak	Airtronics M8
10	5	Ryan Smith	Associated T4	Reedy	Reedy	Losi	LRP	Airtronics M8

Open Gas Truck			CHASSIS	ENGINE	FUEL	TIRES	RECEIVER PACK	RADIO
FIN.	QUAL.	DRIVER						
1	3	Frankie Contreras	Losi XNT Drake	Sirio	Trinity 20%	Losi	Trinity	Airtronics
2	4	Ryan Dunford	Losi XNT Drake	Fantom	O'Donnell 20%	Losi	Elite	KO Propo Mars R
3	1	Cody King	Losi XNT Drake	Sirio	Trinity	Losi	Novak	Airtronics M8
4	9	Tanner Stumpf	Losi XNT Drake	Novarossi	O'Donnell	Panther Switches	Reedy	Airtronics M8
5	5	Derek Lamb	Losi XNT Drake	RB	Trinity	Losi Taper Pins	Trinity	Airtronics M8
6	10	Clint Watcher	Losi XNT Drake	O.S.	Sidewinder 20%	Losi	Team Orion	Airtronics M8
7	7	Nathan Lavery	Losi XNT Drake	O.S.	Trinity	Panther Switches	Team Orion	Airtronics M8
8	6	Christopher Wheeler	Losi XNT Drake	Team Orion Wasp	Team Orion	Losi	Ballistic	Airtronics M8
9	8	"Casper"	Losi XNT Drake	Novarossi	O'Donnell	Losi Taper Pins	Elite	KO Propo Mars R
10	2	David Shepard	Dace/Losi	O.S.	Sidewinder 30%	Panther Switches	Team Orion	Futaba 3PJ

*INS = information not supplied by driver



Dimitry Slobodskiy (left) and Artie Pollard (right) were the two youngest competitors, but they battled just like the pros.

THE WRAP-UP

Early in qualifying, it was obvious that Ryan Cavalieri was racing on an entirely different level. Not only did he dominate qualifying, but he dominated the Mains as well. Cavalieri's string of wins continues to prove that he is the number-one electric off-roader right now. See ya at the 2005 race! ■



Mastering a new track

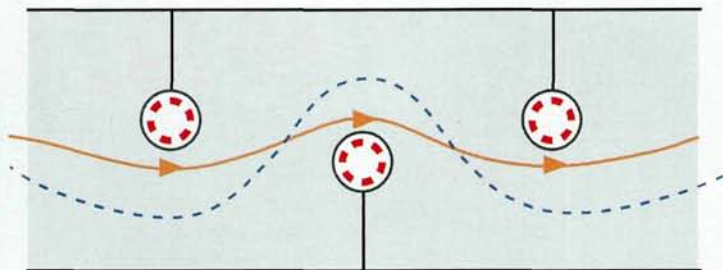
SEEING A TRACK FOR THE FIRST TIME is always an exciting moment for a driver, including me. To be successful, you must evaluate a track according to its strengths, weaknesses and quirks. This month, I explain the key characteristics to look for in a track, and tell you which corners are important and which are not. We'll also talk about passing zones, how to find the best racing line, and how to stay one step ahead of changing track conditions.

KEY



Fast line

Slow line

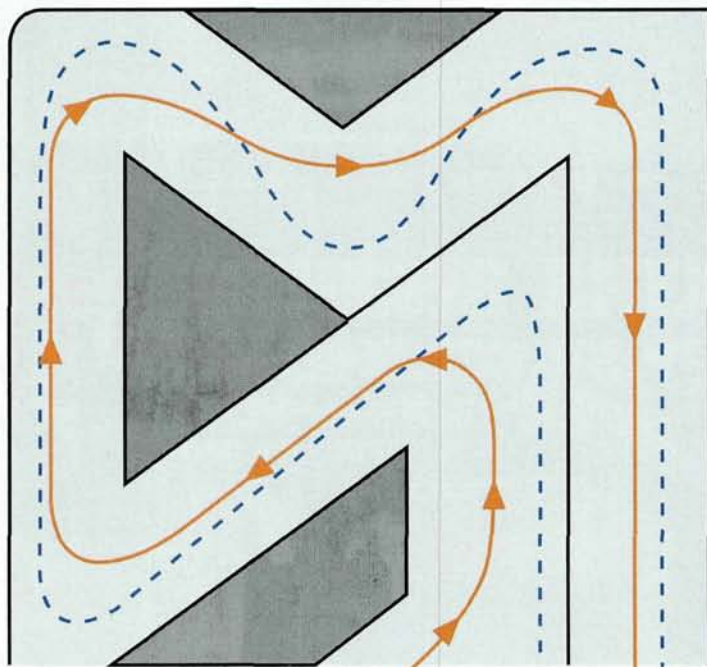


Be careful when racing through lazy S's with corner dots or boards; approach them at slower speeds until you get more comfortable with them.

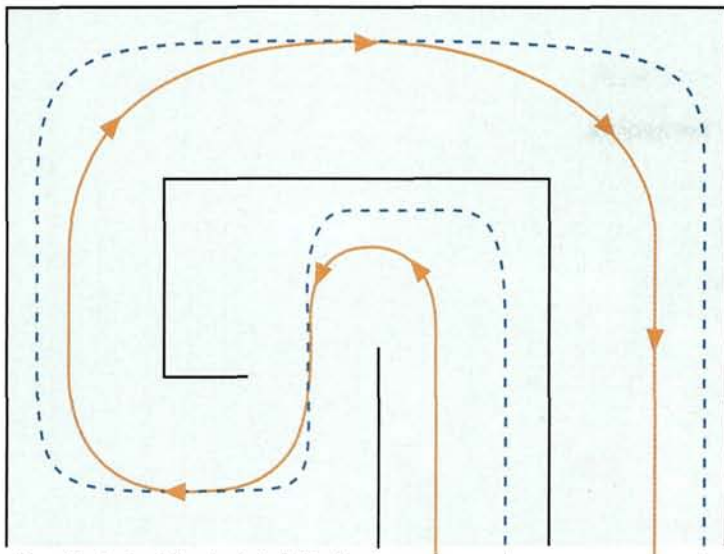
TACKLING TRICKY CORNERS

When you first set eyes on a new track, look for the tricky corners; for example, look for **boards that may snag your car**, a fast entry going past a corner dot, off-camber turns, etc. A sweeper that enters or exits the straight with a sharp 90-degree corner can be disastrous if you turn too early. A set of lazy S's with corner dots or boards can also **spell trouble**. These types of corners are the ones that send you walking slowly back to the pits with wheels hanging on by a tie rod.

Know these corners and approach them with caution until you get them down. Finishing all your practice rounds is key to getting your car set up; **don't cut your practice time short** by breaking your car as you over-drive the turns. Once I've identified any tricky turns, I look for turns and sections that can make or break a lap.



Look for sweepers that enter or exit a straight with a sharp, 90-degree corner. Don't turn too early, or you could be heading back to the pits sooner than expected!



Be on the lookout for short straights. Try to round them into a nice arc to lower your lap times.

MAKE-OR-BREAK TURNS

Identifying make-or-break turns is not always easy. For example, look at a turn that enters a straightaway. Common sense tells us that the easiest place to make up time is down the straight. To accomplish this, you must **enter the straight faster** than the next driver (more speed as you enter usually means more speed at the end).

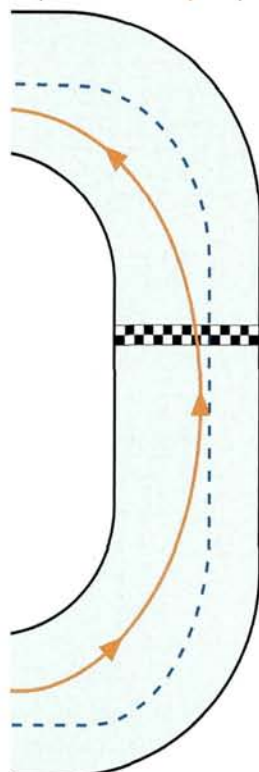
A hairpin turn before the straight is not a make-or-break turn because it must be taken rather slowly. The same applies to a sweeper before a straight; most racers will be able to negotiate this corner easily.

A section that can make or break a lap is a set of S's that leads into a straightaway. Get them right, and your car will rocket onto the straight. Get them wrong, and you might as well enter the straight from a dead stop.

Coming off the straight, it is very common to see a big sweeper or another set of S's. Again, the sweeper isn't a big deal—but you can make up time in the S's.

Also look for the short straight that can be rounded off into a nice arc. Running the right way through this type of section can significantly lower lap times. The easiest way to negotiate such a turn is to straighten it out before you make the second turn. This usually makes the car look as though it's slowly doing a slight S-bend in the straight section. The fast way to do these types of turns is to turn the short straight into a nice radius. **Think of it as a micro oval.** Drift just far enough to the outside of the straight to give yourself a chance to make the second turn without straightening out the car. This creates the shortest distance between the two turns and allows you to carry the most speed into the next section.

Make-or-break sections tend to **flow**. This is why the good drivers can capitalize on these sections, and you will, too, with some practice. When you start to see the best lines on the track, you'll be able to better evaluate where to make passes.

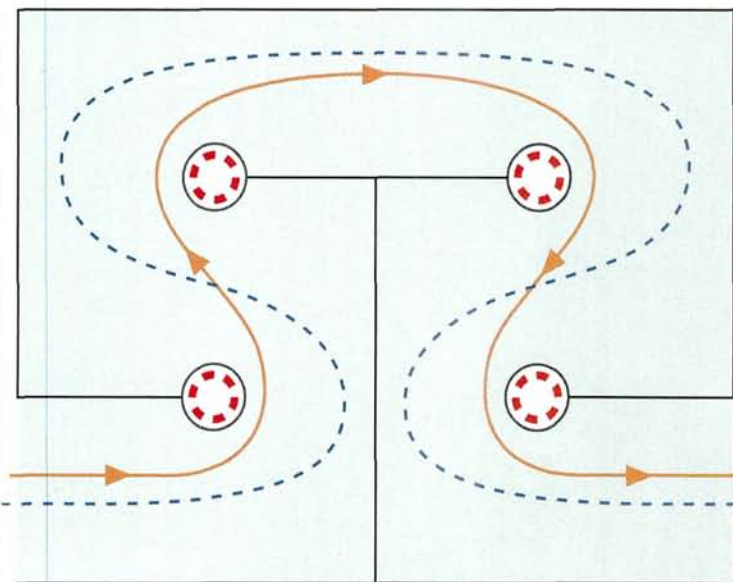


To enter a straight faster than the next driver, you need to properly size up the corner before the straight to get your approach just right. There are many kinds of turns, and each needs to be attacked differently.



CHASING ASPHALT

Anyone who has raced on asphalt knows that track conditions change throughout the race day. Successful drivers know how to predict changes and how to use them to their advantage. Asphalt is usually slippery in the morning and slowly gains traction as it heats up and the oils in it come to the surface. I have found that traction is usually optimal during the late morning/early afternoon. Sometimes, though, especially on hot days, the track can get too hot. When the sun starts to set and the track begins to cool, watch out: as all the oil cools, it becomes incredibly sticky. If you are at a multi-day event, take daily notes, so you know what to change as far as tire or car setup to take advantage of changing track conditions.



It's difficult to pass in technical sections such as these repeating S's, for example. Be patient as you look for the right opportunity to pass.

PROPER PASSING

Putting together a clean pass is determined not only by how your car works, but also by the track's design. Typically, hairpin turns and S-sections in the track aren't good passing zones. Passing is as much about opportunity as it is about waiting for the right part of the track. **Your passing zone is where you feel most confident on the track.** I like to pass coming off a sweeper into the infield, as this allows me to set up and study the car in front of me during the entire straight and sweeper. Two key attributes to pull off a successful pass are **patience and awareness—not speed and reflexes**, as some might think. Ultimately, size up the car you want to pass, and be ready to move when you're comfortable and the opportunity presents itself. Avoid passing in hairpin turns and on the track's fast sections, and be sure that your pass doesn't put you on the wrong line for the next turn.



R/C

UNDERCAR LIGHTING KIT

Available in:
White, Yellow, Orange, Red, Green, Aqua and Blue

Available online @ www.rcneon.com

4 Piece
Kit

9 Volt
Battery
Powered

Fits 1/8
to 1/10
scales

joel's bench



When racing on a carpet track for the first time, you not only have to deal with learning the layout, but also with the different levels of traction.

CARPET CHECK

Carpet tracks inherently gain traction as tire additives used on the foam tires soak into them. This is not the only factor in a track's gaining or losing traction; temperature also has an effect. What I've seen at carpet tracks is that when the room gets colder, the traction level rises and vice versa. This usually happens on the day of the Mains (especially when the promoters turn on the air conditioning to cool off the room because so many people pack in to watch). Many a time at the Cleveland Indoor Champs, I had to fight off traction-rolling in the Main event, whereas I never experienced it at any time leading up to the race. The common factor was room temperature every time. After 20 years of racing on carpet, I've been able to correlate traction changes with room temperature. The colder it gets, the more the traction increases.

WATCH THE TAPE

Many carpet tracks use duct tape to hold the seams in the carpet together. These seams always run up and down the track and can definitely upset the handling of your car. A seam in the middle of a short straightaway, for instance, can make it very difficult to radius the turn properly. The key is to not stay on the tape for too long. Try to choose a line that gets you on and off the tape quickly. In the end, the tape can dictate where your line ends up!

TAKE IT TO THE TRACK

The next time you race, check out the track before you practice. Watch the other drivers, find the "tricky" corners, identify the make-or-break sections, study other drivers' lines, look for places to pass and then head out to practice. You might discover that the area you thought would be trouble ends up being your favorite passing spot. The important part is to analyze everything: it's the first step to becoming a better driver. Worry about the "how," and the "how fast" will take care of itself. ■

FIND IT

Go to page 276 for manufacturers' contact information

or call us at - 1.800.334.7226

LRP Pulsar Competition 2

A BETTER LITTLE **BLUE** BOX

SINCE ITS RELEASE, many national and world champions have relied on LRP's Pulsar Competition charger to put the juice in their packs. And every weekend, you can find plenty of these little blue boxes at club races across the U.S., and for good reason: they work—and work well. Believe it or not, you can tell the difference between chargers when you run a pack. LRP has updated its popular Pulsar Competition charger: the Pulsar Competition 2. Let's see if one of the best has become any better.



MANUFACTURER'S SPECIFICATIONS

- | | | | |
|-----------------------------------|----------------------------------|---|---------------------------------------|
| › Charging capacity 1 to 8 cells | › Delta-peak threshold 5 to 95mV | › Discharge current 0.1 to 10 amps | › Motor run-in voltage 2 to 7.2 volts |
| › Charge current 0.1 to 10 amps | › Auto-start timer 0 to 99 min. | › Discharge cutoff voltage 0.9 to 7.2 volts | › Motor run-in maximum 14 amps |
| › Trickle current 0.0 to 0.4 amps | | | |



This is the screen you'll see when a pack is charging. The upper left corner displays the charge mode and amp rate (linear and 4 amps, in this case) or the input voltage. Below that, the battery's voltage is indicated. In the upper right corner, the charging time is displayed and the pack's current mAh is below that.



FEATURES

MULTIPLE PROFILES. The Competition 2 allows you to store three user profiles so you don't have to toggle through all of the settings every time you switch battery types.

EXTRA-BRIGHT LCD. You can't miss the Pulsar Competition 2's bright blue backlight. Besides looking cool, the display is easy to read in most light conditions, and LRP uses a 2x16-character screen that displays data without using any cryptic abbreviations.

AUTO-START TIMER. Having your batteries peak right before your race is the only way to ensure that you have the most volts (and resulting punch) possible. The timer allows you to set the charger to start anytime from 0 to 99 minutes, so if the A-main is an hour away, and your best pack takes 45 minutes to charge, just set the timer for 10 minutes and walk away.

AUTO-RESTART. If an interruption in power occurs, when power is re-established, this feature will automatically resume charging where it left off.

LINEAR AND FLEX CHARGE MODES. The Pulsar Competition 2 can be set to charge in linear (constant rate) or flex (charge interrupted with short discharge pulses). The flex charge is designed to breathe new life into old, "soft" Ni-Cd packs by breaking up internal crystalline formations that have developed over time.

ADJUSTABLE DELTA-PEAK DETECTION. This is adjustable from 5 to 95mV, so even the most stubborn packs can be charged without false peaking.

MOTOR RUN-IN. This is a great feature to have in a charger. Like its predecessor, the Pulsar Competition 2 can run motors for break-in. In addition to seating a new set of brushes, you can use this feature to run a motor lathe or even power a 7.2V soldering iron.

DISCHARGE. The discharge rate can be 1 to 10 amps, so any battery type can be safely discharged.

MATCHING. This function automatically switches the charger

TESTING

I performed a "no instructions" experiment: I tried to use the charger without reading the manual (I'm familiar with LRP chargers, so I was cheating a bit). As I expected, the Pulsar Competition 2 was very easy to use; there's a simple logic to its navigation, and mastering all of its controls takes hardly any time at all.

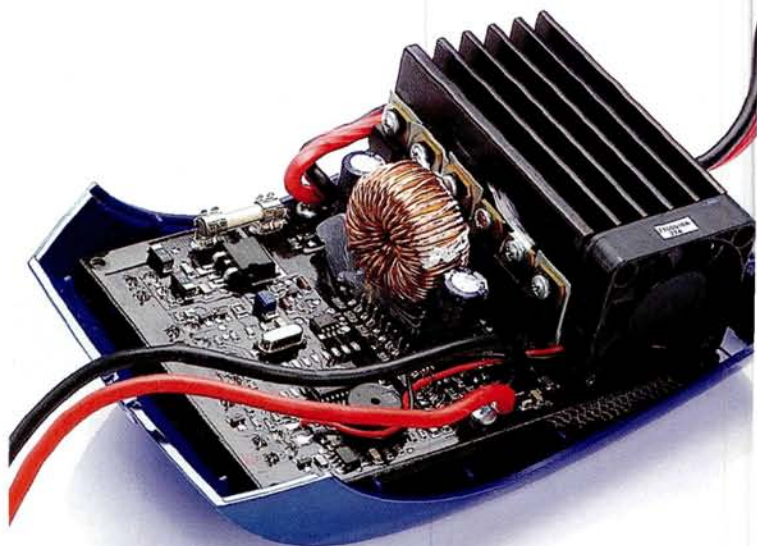
LRP includes the recommended settings for the most common battery types in its manual; that makes setting up and using the charger properly easy. If you follow the guidelines in the chart, you'll be sure to correctly charge and discharge your packs. The user profiles are set at the factory for three popular battery types, but you can change them, of course. P1 is initially set up for GP 3300 packs, P2 for sport packs of 1500mAh or more, and P3 is programmed for receiver or micro-packs.

I charged and discharged every type of pack I could find and ran the unit almost non-stop for the better part of a day. I must have put the juice into and out of more packs in one day than most people will in three months. None of the packs false-peaked (most likely because of the PCS-3 programming), and the charger never malfunctioned. When charging, the Competition 2's internal temperature stayed around 100 degrees, but it sometimes climbed close to 200 degrees when discharging. The unit's temperature typically hovered around 150 degrees during discharges, but regardless of how hot or cool it was, the charger worked flawlessly.

Throughout testing, I especially enjoyed being able

to change the charge rate while in mid charge, and the alligator clips' built-in banana plugs made the charger very easy to use with my power supply.

I also tested the motor run-in feature, and it worked as promised, as did the matching feature. Although it may not be possible in a unit of this size, I'd like the discharge rate to be at least 20 amps—if not 30—for my racing packs. The 10A maximum rate is more than enough for micro- and receiver packs, though. I always completely discharge my receiver packs before charging them so that I'm 100-percent certain that they're fully charged.

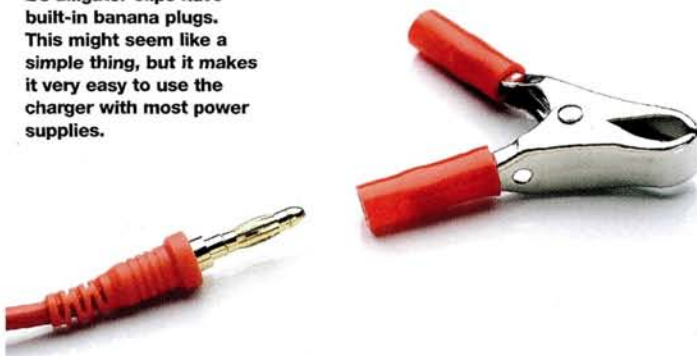


Here are the Pulsar Competition 2's guts. Note the fan and large heat sink. The charger easily maintains a low temp of 100 degrees while charging.

PULSAR VS. PULSAR 2

	PULSAR COMPETITION	PULSAR COMPETITION 2
Charge rate	0.1 to 8 amps	0.1 to 10 amps
Delta-peak range	5 to 80mV	5 to 95mV
Motor run-in capability	0 to 9 amps	0 to 14 amps
Programming	PCS-2	PCS-3 (more resistant to false peaking)
User profiles	1	3
Discharge rate	10 amps (fixed)	1 to 10 amps
Discharge cut-off	3.6 to 6.9 volts	3.6 to 7.2 volts
Auto-start default	None (value must be entered)	30 sec. (if no value is entered)
Input leads	Standard alligator clips	Plug-in alligator clips
Screen backlighting	Blue	Ultra-bright "laser-blue"

The Pulsar Competition 2's alligator clips have built-in banana plugs. This might seem like a simple thing, but it makes it very easy to use the charger with most power supplies.



THE VERDICT

The easy-to-use LRP Pulsar Competition 2 does as good a job of charging batteries as any other pro-level charger I've used. All the packs I charged with the Pulsar Competition 2 had impressive punch, and I knew they were charged to their full capacity; for racing, I wouldn't settle for anything less. This is the charger you'll see on my pit table from now on. ■

FIND IT

>>> Go to page 276 for manufacturers' contact information

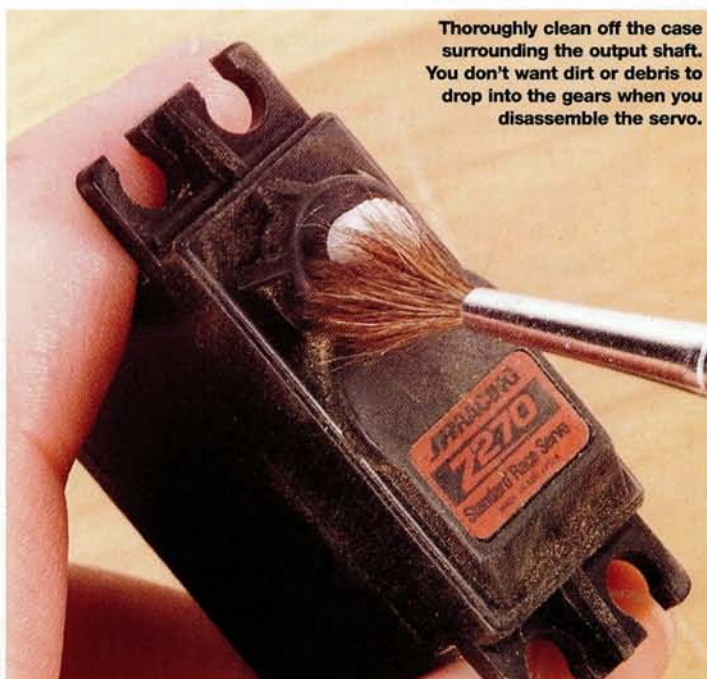
Fix a **broken** servo

FROM STRIPPED TO SAVED IN **10 STEPS**

WHETHER A CAR GETS ITS JUICE from a battery or from nitro, we all depend on at least one servo to make it do what we want. But servos are prone to mechanical failure and will eventually need maintenance. The most common problem is usually a worn-out or stripped gear set. You'll know that the gears are stripped if the servo doesn't turn or if you hear a crackling sound when you give it radio input. This step-by-step shows you how to change a gear set with minimal frustration.

1

First, remove the servo horn or servo-saver that's attached to the output shaft (assuming that the servo has already been removed from the vehicle). Thoroughly clean the outside of the case with a brush, and be sure to remove all dirt from the area where the shaft exits the servo case.



Thoroughly clean off the case surrounding the output shaft. You don't want dirt or debris to drop into the gears when you disassemble the servo.



YOU'LL NEED

- Jeweler's screwdriver or Torx driver, depending on the servo
- Replacement gear set
- Silicone grease
- Cotton swabs, small brush
- Motor spray, bearing oil (optional)

2



Use the proper-size screwdriver to remove the screws from the servo case; you don't want them to strip out!

Remove the four screws that secure the case. If your servo uses Torx screws, get the correct Torx driver; don't hack at the screws with a Phillips tool.

To split the servo case, apply light pressure to the output shaft with your thumb ...



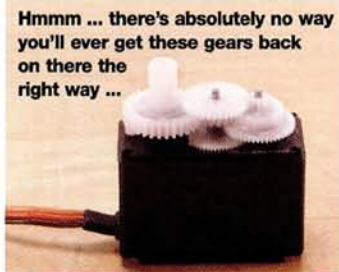
... while you pull up on the case tabs.



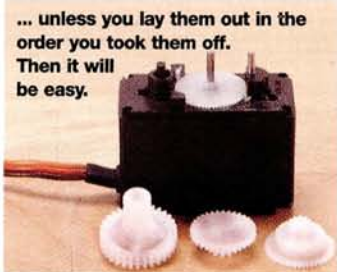
3

Carefully separate the top part of the case from the bottom. Press down on the servo-output shaft while you pull up on the case tabs to allow the gear set to remain intact. Note the tiny shafts on which the gears spin. If there is a rubber seal, carefully remove it and set it aside.

Hmmm ... there's absolutely no way you'll ever get these gears back on there the right way ...



... unless you lay them out in the order you took them off. Then it will be easy.



Inspect all the gears, and look for chipped teeth and stripped sections.

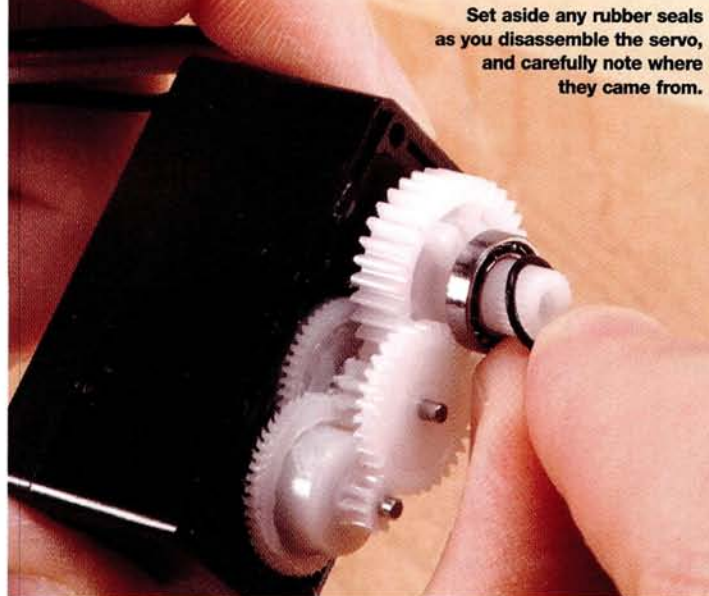


Thoroughly clean the inside of the servo case; look for signs of debris and broken gear teeth.

5

Use cotton swabs to clean out the grease from inside the top case and around the shafts where the gears spin. If any of the gears have chipped teeth, small pieces of plastic may be hidden in that goop, so it's best to clean it all out.

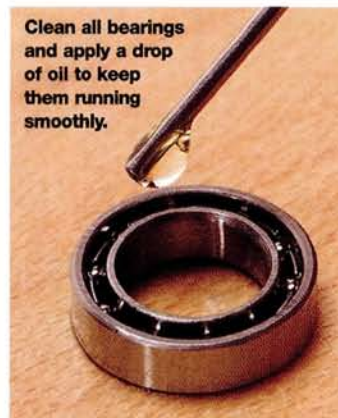
Set aside any rubber seals as you disassemble the servo, and carefully note where they came from.



4

Before you remove the gears, note their orientation so you can reinstall them correctly; then remove them and set them aside in the order of their placement in the case. This will be your guide for installing the new gears. They go back together in only one way, so carefully note the order as you remove them.

Clean all bearings and apply a drop of oil to keep them running smoothly.



6

If your servo has one or more ball bearings for the output gear (the top one with the output shaft), clean those bearings with motor spray and then apply a tiny drop of bearing oil to each. Exposure to motor spray can weaken some servo cases, so it's a good idea to carefully push out the bearing with a screwdriver to avoid getting motor spray on the case.

how to

fix a broken servo



7

Use a light bearing oil to lube the near gears. This is especially important on servos with metal gears. You can be generous with the oil, but don't use so much that it will seep out of the case when you put it back together. Also put a drop of oil on each shaft.



8

Reassemble the servo with the replacement gears, and pay attention to the proper gear arrangement.

Install the new gear set. Usually, the gear with the output shaft (the top gear) has a notch in it to limit its travel within the top of the case. Look inside the case to check the range, and place the output gear in the center of the range.



9

Replace the top of the case over the gearset. You may have to tease it a little bit, but don't force it; if it doesn't go on easily, the gears are probably assembled incorrectly!

Reinstall the screws, but don't overtighten them. Again, small screw heads can be stripped easily, so don't overdo it!



10

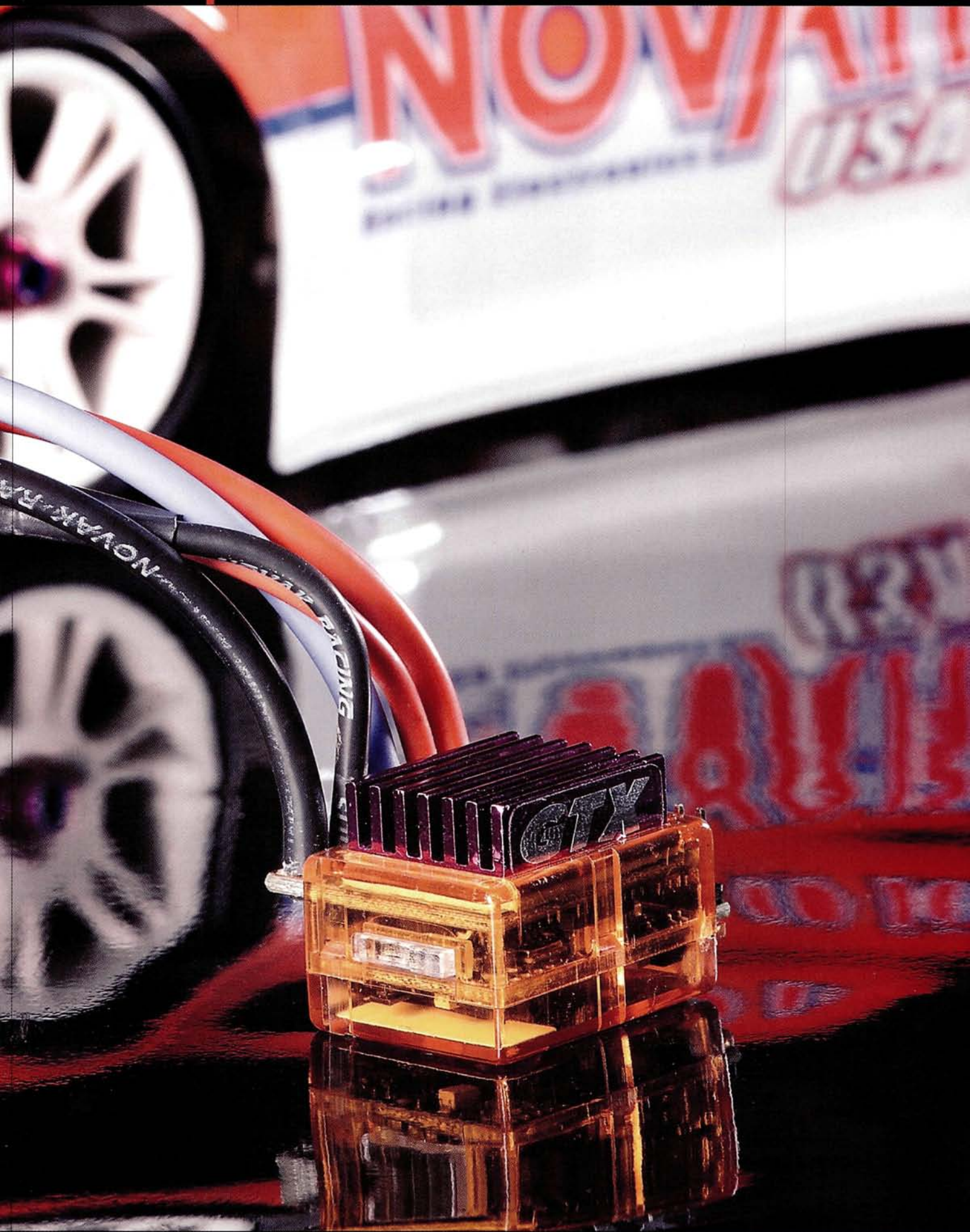
If your servo has a rubber seal, wipe it clean, place it in the seam between the case parts, and then reinstall the screws. That's it! ■

UPGRADE YOUR SERVO

When it's time to rebuild your servo, you may want to consider an upgrade as well. Many manufacturers offer ball bearings to replace the standard bushing (for more precise centering) or heavy-duty metal gears to replace the stock plastic set. Hitec, for example, offers a complete line of replacement metal gears such as this set shown (item no. 56394 for the HS-525BB servo). Metal gears not only increase a servo's holding power, but they are also considerably more durable than nylon gears. Also, most metal-gear conversion kits usually cost just \$17 to \$25, which isn't bad when you consider that new metal-gear servos typically cost two to three times that amount.

FIND IT

»» Go to page 276 for manufacturers' contact information



NOVAK GTX

A PROFILE IN PERFORMANCE

WHEN IT COMES TO PROGRAMMABLE PERFORMANCE, Novak is the king. The original Cyclone speed controls let you customize their software with the hand-held Pit Wizard or your PC. Novak eliminated the need for external devices with the GT7, which allowed access to the same programming functions but let you do all the tweaking via the setup button. Novak's latest is the GTX, and it shaves a few grams and millimeters from the already-small GT7 to become Novak's smallest and lightest speed control ever. It also ups convenience with simple throttle-profile selection, a replaceable wire/switch harness and even lower on-resistance. But will it win races? Ask Ryan Cavaleri, Mike Blackstock, Jukka Steenari, Brian Kinwald, Ralph Burch and Greg Hodapp; they've all won big events ranging from the IFMAR 4WD Worlds to the Snowbird Nats using the GTX!



PHOTOS BY PETE HALL

The GTX is dwarfed by a Novak XXTRA receiver. Remember when the speed control was the *biggest* thing in your car?

FEATURES

ONE-TOUCH SET-UP. Novak was the first to dump potentiometers in favor of a solid-state pushbutton setup. The latest incarnation is a finger-friendly, side-mounted button that uses four LEDs to blink the GTX's setting status.

INSTALLED POWER CAPACITOR. Novak spares you the trouble of soldering the power capacitor and cautions against removing it, as the cap is essential to the GTX's cool-running efficiency and reduces voltage spikes.

7 THROTTLE PROFILES. The GTX arrives with seven factory-set profiles. They are arranged from most "aggressive" (Profile 1) to most "smooth" (Profile 7). Profile 3 is the factory default; see "Throttle-Profile Specs" for the individual performance parameters of each profile.

CUSTOMIZABLE 7TH PROFILE. The GTX's throttle profiles are fixed, except for the seventh, which can be completely tailored by the

user. Drive frequency, minimum drive, brake frequency, minimum brake and dead-band can all be set independently. See the glossary for an explanation of each.

ADJUSTABLE MINIMUM BRAKE & DRAG-BRAKE SETTINGS. Whether you select a preset or custom profile, the GTX allows you to set the minimum brake (or drag brake, if activated) to your liking. The default setting for all profiles is 20 percent, but you can go down to zero or select as much as 50 percent of total brake in 5-percent increments.

VARIABLE THROTTLE STEPS. If you had a speed control with just one "step," it would essentially be an on/off switch. Two steps would give you half and full throttle; 10 steps give finer control and 100 steps give even greater precision. The GTX has up to 1,300 steps for a supersmooth feel, and it can vary the number of steps according to the drive

frequency of the throttle program you select. Lower-frequency settings have more steps, so you won't have to sacrifice fine-throttle control for low-frequency punch, and higher-frequency settings have fewer steps so the throttle doesn't feel "mushy."

CONSTANT FORCE BRAKING. Because electric cars use the motor's electromagnetic field for braking, motor rpm affect the available braking force: the lower the rpm, the less braking force available. To counteract this effect, the Constant Force circuitry adjusts the brake signal relative to trigger position and motor rpm to give a more consistent brake feel.

GOLD-PLATED SOLDER TABS. External solder tabs eliminate the need to crack open the case for wire replacement (or the need to return the speedo to the factory for said surgery). Novak gold plates the tabs for the lowest possible electrical resistance.

REPLACEABLE COMBINATION INPUT HARNESS/POWER SWITCH.

Convenience counts, and this is a great convenience feature. Not only can you unplug the input harness and switch as a unit, but Novak even includes a shorter harness (5 inches versus 12) for a neater install.

THERMAL-OVERLOAD PROTECTION. Onboard temp sensors monitor the GTX continuously, and if heating gets out of hand, the speed control will shut down until it cools off.

RADIO PRIORITY, DIGITAL ANTI-GLITCH & POLAR DRIVE CIRCUITRY. Classic Novak stuff. Radio Priority maintains full power for the steering servo no matter how hard the pack is dumping. Polar Drive keeps the GTX cool even at partial throttle, and you'll know the Anti-Glitch circuitry is working when you realize you don't have throttle glitches anymore.

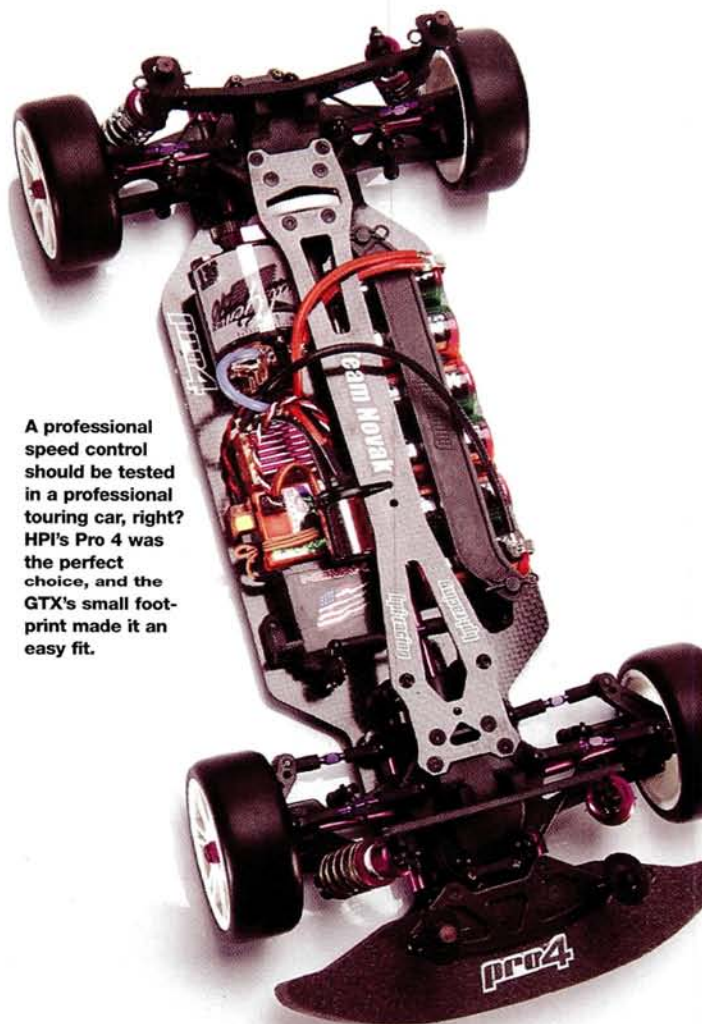
DRIVING THE GTX

I tested the GTX in an HPI Pro 4 with a Novak battery pack and a Trinity Speed Gems Pro Jet motor. I started out with Profile 3, the default setup. With 11 turns of Trinity power onboard, the Pro 4 surged across my parking-lot test track in a hurry. The GTX operates at 3500Hz in Profile 3; that gives the throttle a punchy feel that's likely augmented by Novak's Variable Step technology. Braking feel is very good, certainly among the best I've felt with a brushed motor—there must be something to that Constant Force braking stuff. After completing a pack's worth of laps, the GTX was only slightly warm, even though the motor was blazing.

After giving the car some time to rest, I punched up a new profile for more laps. Dialing in the GTX can be a bit fiddly, but if you keep the manual handy and install the speed control so you can access the setup button and see the side-mounted LEDs clearly, it isn't difficult. I went with Profile 7 for the next run; it has the highest frequency (11000Hz), and I tried a little drag brake with the number 3 setting—30 percent

of full brake. The higher frequency gave a softer feel at launch, but there was no shortage of power all the way to full throttle. For low-grip tracks, the higher-frequency profiles may really help you stay in control. Likewise, drag braking can be a boon if (like me) you don't have the most precise trigger finger. Just let off the gas, and the GTX will apply exactly the same amount of brake each time the trigger hits neutral—no driving skill required.

Previous experience with the Cyclone series speed controls and GT7 has made it clear that Novak's factory-set profiles are all I'll ever need, but just to make sure that I gave the GTX a thorough test, I opened up Profile 7 and went to town. I programmed a bizarre mix of settings so it would be easy to feel the changes, and the GTX is indeed completely programmable (for better or worse, depending on the choices you make!). If you really don't like what you punch into Profile 7, it's easy to get back to the factory setup: just go through the One-Touch Set-Up process, and all the factory presets will be restored.



A professional speed control should be tested in a professional touring car, right? HPI's Pro 4 was the perfect choice, and the GTX's small footprint made it an easy fit.



The GTX is tiny, but you will have to find a home for its large power capacitor. Novak warns against running the GTX without it.

MANUFACTURER'S SPECIFICATIONS

Input voltage	4 to 7 cells
Case size	1.11x0.86x0.60 in. (28.2x21.8x15.2mm)
Weight	0.64 oz. (18.1g) w/heat sink, without wires
Motor limit	None (any brush-type RC motor)
On-resistance	0.00034 ohms
Rated current	700 amps @ 25° C MOSFET temp.
Braking current	300 amps @ 25° C MOSFET temp.
BEC	6 volts/3 amps
Schottky diode	36A built-in
Maximum discrete steps	1,300 (forward)
Battery/motor wire	14G
Drive frequency	1000 to 11000Hz
Minimum drive	2 to 12%
Brake frequency	1000 to 6000Hz
Minimum brake	0 to 50%
Deadband	2 to 6%
Drag brake	0 to 50%

LIKES

- ▶ Selectable throttle profiles are truly valuable tuning aids.

- ▶ The small case is easy to fit on any chassis.
- ▶ Built-in Schottky diode—one less thing to solder!

DISLIKES

- ▶ Big capacitor takes away from the GTX's small-size appeal.

- ▶ Side-mounted setup button and LEDs may be difficult to see/access depending on installation.

GLOSSARY

FREQUENCY. To oversimplify, a speed control varies motor speed by cycling the motor on and off many times per second. The number of cycles per second is the frequency in hertz (Hz). It is generally accepted that higher frequencies result in smoother throttle feel and lower frequencies have more punch. Drive frequency is most often discussed in terms of throttle, but a speed control's brake system also cycles on and off many times each second and has its own frequency. The GTX's drive frequency and brake frequency can be set independently.

MINIMUM DRIVE. This is the percentage of full throttle that will be used as the minimum amount of throttle. For example, the minimum-drive setting for Program 1 is 3 percent; that means the least amount of throttle the GTX will deliver when it's set in Program 1 is 3 percent of full throttle.

MINIMUM BRAKE. This is the percentage of full brake that will be used as the minimum amount of brake. The default minimum-brake setting for all the GTX's programs is 20 percent. That means the least amount of brake the

GTX will deliver is 20 percent of maximum brake. Minimum brake can be set for zero, 20, 30, 35, 40, 45 and 50 percent. If you select the drag-brake option, the minimum-brake setting will be used as the drag-brake setting.

DRAG BRAKE. Instead of allowing the car to coast freely when the trigger is at neutral, the drag-brake setup automatically applies the brake when the trigger is at neutral. The GTX uses the minimum-brake setting programmed by the user as the drag-brake value. So, if you set the minimum brake to

20 percent, the GTX will automatically apply 20 percent of full brake when the trigger is at neutral.

DEADBAND. The small amount of trigger travel at neutral that doesn't actually cause the speed control to activate the throttle or brake is called the deadband. The GTX's deadband is set at 4 percent for all seven programs. That means the initial 2 percent of the trigger's forward travel and the initial 2 percent of its brake travel is deadband (for a total of 4 percent).

THROTTLE-PROFILE SPECS

Throttle profile	1	2	3	4	5	6	7
Drive frequency (kHz)*	1.5	2.5	3.5	4.5	5.5	7.5	11
Minimum drive (%)	3	3	3	5	5	5	6
Brake frequency (kHz)*	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Minimum brake (%)	20	20	20	20	20	20	20
Deadband (%)	4	4	4	4	4	4	4
Standard braking active	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Kilohertz (or Hz in thousands). For example, 1.5kHz equals 1500Hz.

THE VERDICT

The GTX is another Novak winner. It's got a smooth-yet-punchy feel, runs cool and makes the most of a battery pack. You can just plug it in and go racing, but if you take a little time to experiment on practice day, the GTX's throttle profiles can actually improve your driving. If that isn't the mark of a great racing speed control, then what is? ■

FIND IT

Go to page 276 for manufacturers' contact information

headline:

BurnUp the road

ad copy:

Seems like a new car fuel is shoved in your face every day, doesn't it? It's gotten to be a joke and even though these jokes are being told by some trusted names, it just isn't possible to do fuel overnight. You design it, you test it, you learn and you improve — it takes time. No shortcuts, no magic track to the top of the mountain.

At Byron Originals, we know fuel like other makers only wish! Only Byron combines computerized blending accuracy, unequalled raw material purity, pressurized nitrogen blanketing, high velocity closed loop raw material integration, the absolute best recipe and the meanest punch of the pack — bar none.

So, these new guys can pitch you wild cans, incredible claims, cute sports drink bottles, poisonous names — the whole crock of crap. We'll just keep making fuel that fries the road and smokes the competition.

NEW R•T•R — unequalled performance and lubrication for off-the-shelf ready-to-run packages.

Official Fuel Sponsor for RCX 2004

Byron Fuels are available in nitro packages from 10% to 40% and can be purchased at most hobby shops. To find the dealers nearest you, visit byronfuels.com.



RACE

PREMIUM R/C CAR FUEL

byronfuels.com for the dealers nearest you, or call us at 712-364-3165

Byron Originals, Inc. • P.O. Box 279 • Ida Grove, IA 51445





MAXX THRASH:

Pro-Line

Moab tires & HD 23mm-hex wheels

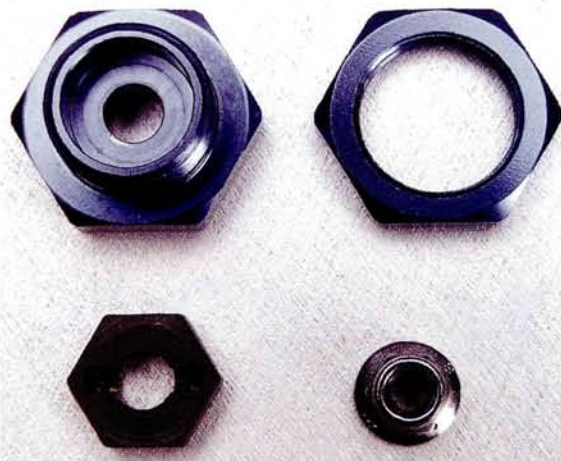
I Pro-Line was one of the first aftermarket companies to get on the Maxx bandwagon, and Pro-Line's bodies, wheels and tires for Traxxas trucks have since become staples of T-Maxx mod sessions. Pro-Line's latest Maxx gear is a line of heavy-duty wheels with huge 23mm hexes and new oversize Moab 40 Series tires to go with them. In this edition of Maxx O, I'll test the new gear to see whether "Heavy Duty" really means heavy-duty.

23MM HEAVY DUTY HEX. Today's monster trucks are getting bigger and more powerful. Engine sizes have been bumped up considerably; most monsters hitting the shelves today are big-block powered, and many Maxx owners have gone big-block as well. Truck size and weight have also nearly doubled. And tires are catching up quickly with some more than 6 inches tall. But one thing that hasn't changed much is the standard-size monster-truck hex hub; at 14mm, it's not quite proportional to these new oversize tires and wheels.

With that in mind, Pro-Line designed heavy-duty 23mm aluminum hexes to replace standard 14mm hubs. The 60-percent larger hexes are machined from 6061-T6 aluminum and blue anodized. Installation is simple; just remove the stock 14mm hex, slap on the 23mm hex and secure your new HD wheel (remember, your 14mm wheels won't fit) with the outer wheel nut. I outfitted my Maxx in less than 10 minutes.

Why would a Maxx owner consider this upgrade? Well, if you plan to install a big-block, the HD hexes will considerably beef up your drivetrain. If you plan on sticking with the original TRX 2.5, just remember: that mill pumps out almost as much power as its big-block cousins, so a little added security couldn't hurt.

23mm Heavy Duty Hex
Adapter—6034-00; \$17/pair



Look how much beefier the new aluminum 23mm hex setup is compared with the stock plastic 14mm piece.





23MM HEAVY DUTY 40

SERIES VELOCITY WHEEL. The new hexes require corresponding 23mm HD 40 Series Velocity wheels. According to Pro-Line, the wheels are made of a tough nylon blend that resists bending and warping. They are compatible with all 40 Series tires on the market and are available in standard white or ultra-bright yellow (do I really need to tell you that they only work with the new 23mm HD hexes?).

23mm Heavy Duty 40 Series Velocity Wheel—2678-02 (yellow), 2678-04 (white); \$18/pair



The Moab 40 Series tire features a very realistic-looking, all-terrain-type tread. The rubber is made of Pro-Line's soft M2 compound, so it gets good grip on a variety of surfaces.

MOAB 40 SERIES TIRE.

The all-new Moab 40 Series tire is Pro-Line's largest tire to date; it's almost 7 inches tall (technically 6.9 inches) and is 3.9 inches wide. It features an aggressive, realistic-looking truck-tire tread, and according to Pro-Line, that tread design allows the tire to get solid traction from as much as a 60-degree angle. With these tires, a Maxx also gains an additional 1/2 inch of ground clearance.

The tires are made of Pro-Line's soft M2 compound for maximum traction and come with firm foam inserts. Many Maxx enthusiasts have been quick to point out that it may be a good rock-crawler tire, but Pro-Line insists that it was designed strictly as a multi-purpose all-terrain tire; it isn't a purpose-built rock tire.

Moab 40 Series tire—1117-00; \$35/pair



Check out the size difference between Pro-Line's new oversize Moab 40 Series tires (left) and a set of standard Maxx-size tires (right).

How do you choose the right wheel/tire combo for a particular track?

—Fred Reiser, Palm, PA

First, I determine whether the running surface will be wet, dry, packed, loose, loamy, etc. Hard-packed surfaces typically require a small-block pin tread. Use tires with larger pins that have more space between them on wet and loamy surfaces. Next, I look at the course's size and layout. I always try to

run as small and narrow a tire as possible. On a smooth, high-bite track, a narrow track width (the distance between the center of the left and right tires' contact patches) offers excellent response in the corners, and you can run smaller tires to save weight because you don't need as much rubber to contact the ground. Rough and slick tracks require a wider offset for more stability and larger contact patches to improve traction. ■



TIRE TEST

We tested Pro-Line's new Moab tires on a variety of surfaces. We found that the large tires stress the stock drivetrain, so you may want to beef it up! If you jump the truck and it lands full punch, you will definitely mangle the stock driveshafts. Do yourself a favor and invest in a complete set of MIP CVDs before you install these big tires!

The tests

ROCK CRAWLING. Pro-Line says the Moab is a general-purpose all-terrain tire, and it handles well on rocks. If your Maxx is equipped with the stock TRX 2.5, gear down a tooth or two to get the max grunt out of the engine. This Maxx tested here has a Sirio .23 powerhouse, so we left the gearing alone; it provides more than enough oomph to get the truck up and over rocks. The added 1/2 inch of ground clearance also helped it to climb over obstacles. Note that the Moab's tread extends deep into the sidewall; this provides good gripping power when the truck tackles tight, winding rocky paths. They definitely have good sidebite!

STREET. No matter which type of surface you usually drive on, you'll hit the pavement at some point. Thanks to their uniform, level tread pattern, the Moab tires handle relatively well there. They are a little on the tall side though, so expect a bit of chassis roll, especially at speed. They also hum at speed on pavement—a pretty addictive sound.

GENERAL OFF-ROAD. This is where the Moab tires and extra 1/2 inch of ground clearance really shine. The tires work well in loose, loamy dirt, but they skitter around and slide on really hard-packed surfaces (the .23 Sirio might also have something to do with that!). It's also a blast to see tires that big on the Maxx; it makes it look like even more of a monster than it already is.



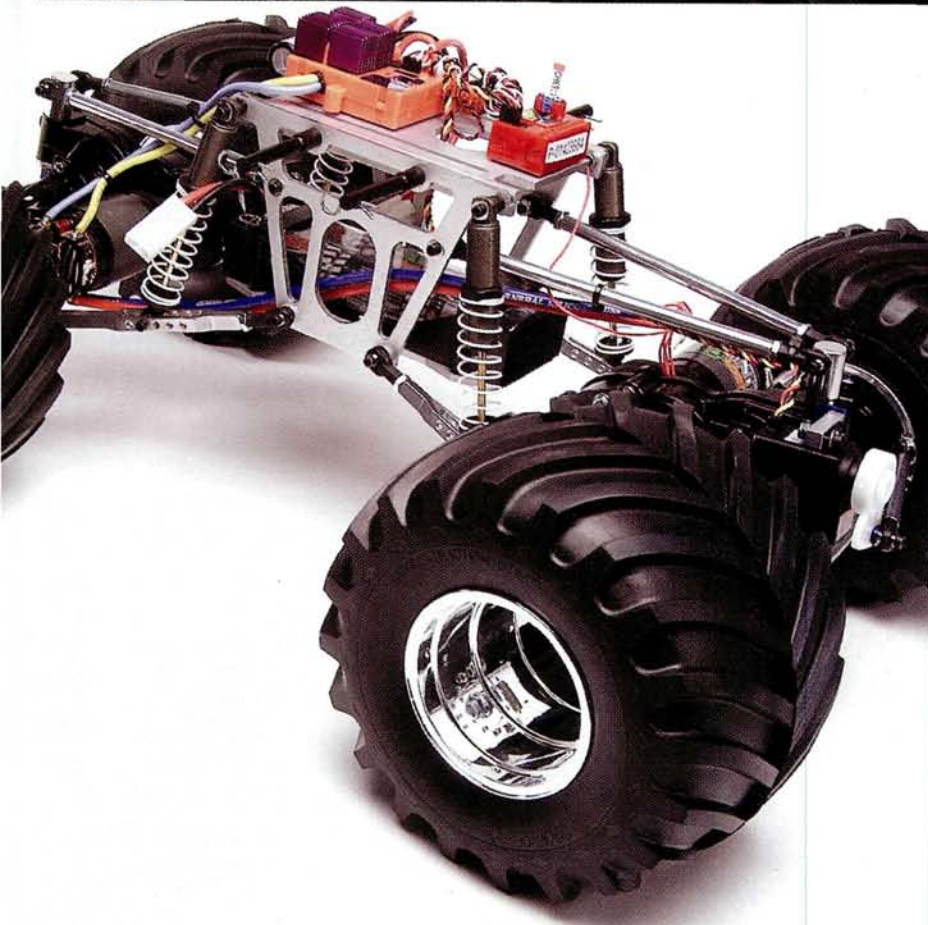
ASK Slayden

Slayden@airage.com



Testing the RC GUY GECKO

ROCK CRAWLING IS RAPIDLY BECOMING RC MONSTER TRUCKING'S "NEXT BIG THING," and RC Guy (great name, eh?) is at the vanguard of the movement with the Gecko 2 chassis kit—a just-for-crawling setup that's ready for your Clod Buster gearboxes and radio gear. I built mine up with my favorite stuff and put the Gecko2 to the test. Here's how it went together and how it rated on the rocks.



Parts

BASE VEHICLE

- Tamiya Super Clod Buster—\$8321, \$210

CHASSIS

- RC Guy
■ Gecko 2 Chassis—\$211

DRIVETRAIN

- Thunder Tech Racing
■ Gear reduction—
ALU-CB36, \$45

SUSPENSION & STEERING

- Team Losi
■ 1.2-inch shock set, hard-coated—A-5034, \$28/pair
■ 2.75-inch, 1.8-rate spring—LOSA5147, \$2.50/pair
■ Threaded-shock-body set (1.2 inch)—LOSA5056, \$20/pair
■ Ti-Nitride shock shaft (1.2 inch)—LOSA5062, \$7 each

RC Guy

- Steering kit—\$65

BODY, TIRES & WHEELS

HPI Racing

- 1973 Ford Bronco—7182, \$33

ELECTRONICS

Epic

- 6-cell VIS-ed stick pack—EP0019, \$60

Hitec RCD

- Aggressor SRX radio—129753, \$100
■ HS-6965HB steering servo—36965S, \$85

Novak

- Super Duty XR—1865, \$149

Team Trinity

- 2 Monster Big Block motors—TRI10052, \$60 each

TOTAL \$1,207

WHAT YOU GET

When you open the package from RC Guy, you'll find a chassis and a 4-link suspension kit for your truck. Now for the cool part: the aluminum-plate chassis and suspension come assembled! The chassis features two side plates, a top plate and a lower plate, so when assembled, it takes on a box form. The low-stress areas of the plates have been machined to enhance looks and reduce weight. All the edges on the chassis have been smoothed out, and the plates have a good-looking, natural-satin finish.

The suspension consists of four upper links and four lower links; the upper links are simple standard rods, but the lower links are a little more intricate. They are CNC-machined out of aluminum billet, and they double as a lower shock mount. Five holes are drilled in the lower links so you can tweak the suspension to suit conditions. The upper arms are connected to the center of each gearbox thanks to a machined mount that fits into the servo-saver hole in the gearbox. The lower links (on the gearbox side) are bolted to the outside bottom of the axle tubes.

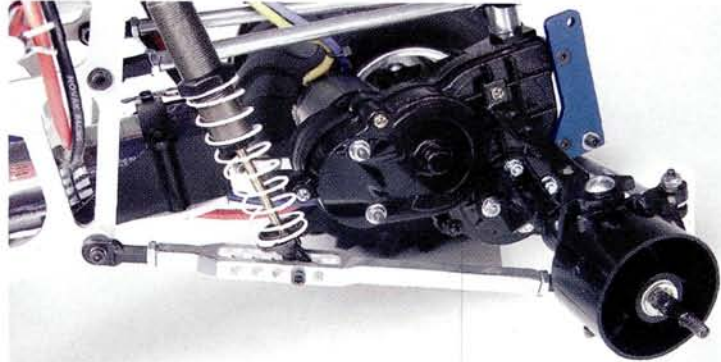
The body mounts are machined out of aluminum rod, and they support the sides of the body (instead of being up top like most body-mount systems). As you can see, it's a very simple setup.

BUILDING THE GECKO 2

Of course, to build the truck, you'll need to get your hands on a set of Clod Buster gearboxes. A chassis is no good without a way to move it around! And yes, it *is* cheaper to buy a complete Clod Buster kit than to buy the parts separately. I had a spare set of axles sitting around from a past project truck, so I cannibalized them for my new crawler. While I was at it, I locked the



The servo is on the front gearbox and is attached to an RC Guy mount that doubles as a steering-lockout plate.



The Gecko2's four-link system uses triangulated upper links to center the gearbox, and the lower legs have integrated shock mounts.



I use a new Novak Super Duty XR high-voltage ESC to send power to the motors. It arrives set up to handle two motors and two batteries, but with a little tweak, I set it up to handle two motors and one battery.

diffs with JB Weld so I would get full forward bite when the terrain got tough.

Since the upper links are attached to the gearbox using the hole meant for the servo-saver, there's no place to mount the servo on the chassis, so you have to mount it on the front gearbox. RC Guy offers a mount that will allow you to set the truck up with 2- or 4-wheel steering. It comes with two servo-mount/lock-out plates, steering links, rod ends and all the necessary mounting hardware. I installed a Hitec H56965HB servo on it.

The chassis doesn't include shocks, and RC Guy recommends that you use 4-inch-long units. I went with a set of Losi's, and I swapped the stock shafts for Ti-Nitride coated shafts. I also swapped the shock bodies for threaded units. And you can't forget about the electronics; a Novak Aggressor SRX radio sends the signals to the truck, a Novak Super Duty XR ESC controls the power supplied by the Epic 6-cell stick pack, and Trinity 14-turn Monster Big Block motors drive the gears.

PERFORMANCE

The big pile of rocks outside the Car Action office was the test site for the new rock crawler. The rocks vary in size from a couple of inches to more than 1 foot in diameter. Before I hit them, I drove the truck up a curb as a quick test. It hit the curb at an angle, twisted like a snake and climbed over the curb as if it wasn't there. After that, I couldn't get to the rocks fast enough. The chassis and suspension performed flawlessly as the truck worked its way over the rocks. It easily tweaked enough to allow the tires maximum contact. Locking the differentials was a great idea; both front and rear wheels have the same amount of power to pull and push the truck around. The truck has plenty of torque for climbing thanks to the smooth operation of its Novak ESC and Trinity motors. Navigating on the rocks was a breeze because of the strength of the Hitec steering servo. It didn't have any trouble pushing the wheels around.

When I had had my fun on the rocks, I decided to tackle some nearby steps. I was curious to see whether the truck would be able to climb them; it didn't have any trouble at all. I just had to angle the wheels slightly to give the treads maximum gripping power.





Inside the New Collari Competition Engines

Given the choice, most of us would pick the most powerful engine. The latest modified Collari engines are built to provide the power we want. They are the result of a merger between IFMAR World Champion driver Lamberto Collari and Sirio, manufacturer of the engines that captured top honors at both recent 2004 IFMAR On-Road World Championships.

Lamberto Collari has won the World Championship in the highly competitive 1/8 on-road class an unprecedented six times, including five times in a row! Collari is the most successful driver in the history of nitro racing—period. Part of his success can be attributed to his natural ability to drive and the rest to his father, who is his mechanic and an indispensable advisor. The two have decades of experience with nitro engines and racing, and they have invested all of their experience in this latest generation of powerplants. Distributed by Werks Racing, this Collari/Sirio collaboration has resulted in a lethal line of three modified engines that rival the best in the world.

COLLARI LC 21GT ON-ROAD ENGINE

This is the jewel in Collari's line. Many Kyosho team drivers used it at the most recent IFMAR 1/8 On-Road Worlds; it TQ'd and put the top three drivers into the final. Lamberto ran a first-generation version of this engine when he powered his way through the field of the world's best drivers to claim victory at that event. It's a highly innovative design, and it has the power and performance to back up the cool new tweaks and good looks. It comes packaged in a foam-padded wooden box and includes a lot of extras that have never been included with any RC engine.

PISTON SLEEVE

■ **Aluminum construction.** The aluminum sleeve keeps overall weight down and lowers the center of gravity (CG) for better handling. It also improves cooling because aluminum dissipates heat more efficiently than brass (upwards of 50 percent). That doesn't mean the engine runs cooler; it just gets the heat away from the piston and sleeve quickly.

■ Integral sleeve and heat sink.

The heat sink is integrated with the sleeve from the exhaust port upward; this greatly improves cooling in the hottest area. The sleeve is bolted to the engine block for maximum stability.

■ **Intricate porting.** The 21GT has lots of ports, and they all have a purpose. This multi-porting properly directs the flow of air/fuel for maximum power and efficiency.

The piston sleeve is not only aluminum, but it also combines the sleeve with heat-sink fins that are usually part of the engine block. This promotes a more efficient sleeve and piston cooling in what's usually the hottest part of an engine.



This is one of the most impressive cranks you'll ever see. It's precisely balanced with beryllium and tungsten plugs in the counterweight, filler is used to smooth the flow into the crank induction port, and it's hardened for durability.

CRANKSHAFT

■ **Precision-balanced crank.** Metallic plugs of various weights and compositions are inserted into the cranks' counterweights for precise balance. This reduces vibration so it increases performance.

■ **Custom induction-port work.** Collari uses a filler material to create a smooth transition area in the induction port. The crank is over-bored and then filled by hand to get air/fuel to flow more smoothly through the crankshaft.

■ **Turbo porting.** Of course, the best engine in the Collari line has a turboported crank, and it helps to draw air/fuel through the crank's center port.

COLLARI LC 21B7 BUGGY ENGINE



The 21B7 is the 7-port version of the Collari buggy engine. A 3-port version is also available, but this is the engine that horsepower hounds seek for buggy racing. The 21B7 is built with those requirements in mind, so it has different features from those on the on-road engine. That's what makes this mill so good at delivering the torque and bottom-end power buggy racers need.

CYLINDER HEAD

■ **Large heat sink.** Buggies don't go as fast as on-road cars do, and they're heavier, so they need more help in the cooling department. The large 21B7's heat sink is 50-percent larger than the one on the on-road engine.

■ **Two-piece.** A heat sink and a separate insert combine to form the cylinder head. The insert is very large in diameter to provide more contact with the finned heat-sink section for better cooling. Inserts for turbo plugs are also available.



The piston sleeve is bolted to the engine block using four fairly large screws. The six additional holes are for the head screws.

on-road competition engine. Collari includes spares of both. That's about \$150 worth of replacement parts (at discount shop prices).

EXTRAS

■ **Includes a header and tuned pipe.** An engine of this caliber has never included a header and tuned pipe, but having them is a good way to ensure that users don't hurt their performance by selecting the wrong header and pipe combo.

■ **Includes an extra conrod and crank bearings.** The conrods and bearings are the most vulnerable components of an extremely high-revving

ENGINE BLOCK

■ **Unique casting.** It's common for engine manufacturers to use the same blocks, cranks and other parts when making engines for other brands. The Collari 21B7 and the 21GT do have the same engine blocks, but they're different from the blocks used for Sirio engines. This block is made to Collari specs and won't be found on any other engine.

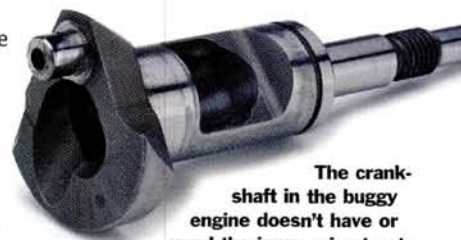
■ **Spring mounts.** The engine has cast spring mounts on both sides of the block so you don't have to use a one-piece spring. A pair of shorter springs holds the pipe more securely; as many as four springs can be used.

PISTON SLEEVE

■ **Brass sleeve.** Off-road racers are still not ready for the alloy sleeves used in the high-tech 21GT and the LC12-Pro just yet, so the 21B7 includes a brass sleeve. The sleeve is tapered and hard-chromed like that on any other high-quality engine.

■ **5+2 ports.** Five standard ports and 2 bypass ports feed the transfer ports.

The piston sleeve is brass, and it has a hard-chrome inner surface. The 5-plus-2-port configuration comprises 5 conventional ports plus 2 bypass ports, which are the lowest on the sleeve and provide extra piston lubrication and cooling.



The crankshaft in the buggy engine doesn't have or need the impressive treatment of the GT on-road engine, but it's a turbo crank with a large center port. A small indent in the face of the counterweight—possibly made by the tip of a drill bit—seems to be there for balance.



Bypass ports are drilled through both sides of the piston and are aligned with the lowest port in the sleeve. These ports help to prime the transfer passages, they provide extra lubrication for the upper rod bushing, and they help to cool the bottom of the piston.



COLLARI LC12-PRO



We dyno-tested the 3-port Collari LC12-Pro for *RC Nitro* magazine, and it produced more power than any .12 engine we've ever tested. Now there's also a 5-port model that could make even more power. In addition to delivering big horsepower, the LC12 boasts a few new innovations that add to the allure of this engine.

■ **Aluminum construction.** Aluminum keeps the engine's weight down and lowers its CG. It's also more thermally efficient, so the engine is cooled more effectively than is possible with a brass sleeve.

■ **Available in two versions with 3 or 5 ports.** Most of us will run 3-point versions in sanctioned competition. The 5-port will be useful when you need even more power, and there's no regulation that forbids it.

■ **Contoured for smoother flow.** The LC12's aluminum sleeve is milled in all the right places to smooth the flow of the air/fuel mixture inside the engine; this improves efficiency and power.

CRANKSHAFT

■ **8mm center port.** The large, free-breathing center port is key to making so much horsepower. The more air and fuel you can pump through any engine, the more power it will make. This engine clearly breathes well.

■ **Advanced induction timing.** The longer the induction port stays open, the more air/fuel you have going into the engine. The LC12 has very aggressive timing specs in this area.

■ **Short stroke.** High revs are usually synonymous with short-stroke engines, but in the case of race-legal engines, they also represent longer exhaust-port timing. Limits on the exhaust-port height mean that shortening the engine's stroke will increase exhaust duration, and that means more horsepower.

CYLINDER HEAD

■ **Low profile.** The unique cylinder head sits quite a bit lower than heads on most engines; that will lower the CG of any vehicle.

■ **Two-piece turbo.** Two-piece heads are more versatile in that the button can be replaced without your having to spend money on a new head. The button fits turbo plugs, which have been proven to deliver little bumps in horsepower.

■ **Machined mating surfaces.** Better cooling results when anodizing is removed from the heat-sink and cylinder head where they contact the insert. This results in more efficient cooling.

Werks Racing (408) 365-1000; werksracing.com.



The LC12 has an innovative, low-profile cylinder head that sits almost 8mm lower on the block than is usual. This helps to lower a car's center of gravity for better handling. Note the cutout in the head to allow clearance for the header.



It isn't as elaborate and expensive as the sleeve included with the 21GT, but the LC12 has a very respectable race-spec aluminum sleeve. The number and size of the ports are in compliance with current race regulations, and the engine's short-stroke design means increased port timing for better performance.

FIND IT

Go to page 276 for manufacturers' contact information



Q I decided to rebuild my nitro engine by following an article I read in your magazine. Everything went well until I tried to remove

the conrod from the crankshaft. No matter what I do, I can't seem to get it free. I don't want to damage the engine, but I can't imagine separating these things without prying the conrod from the crankshaft. Any suggestions?
T. Cantor [email]

A There are usually two causes of this, but you're rebuilding your engine, so that helps me narrow it down to the more likely one. Attempting to separate the bottom of the conrod from the crankshaft may cause you to pull the crankshaft slightly toward the rear of the engine. Doing so doesn't allow the conrod to be pulled out of the rod journal. Pull the crankshaft tip firmly towards the front of the engine; then, while holding it in place with one hand, remove the lower end of the rod with your other hand.

The other cause is the usual tightness of a brand-new engine. At this stage, the fit between the rod and crank is tight, and they may require a little coaxing. Try my suggestion; I think it will solve your problem. ■





HPI's Denso Supra shell (item no. 7424) uses large decals to complete its racing livery, and it's the star of this month's "Body Shop."

Make it Stick

ANYBODY CAN SLAP ON A STICKER, but a professional-looking decal job takes some time and patience—especially if you're stickering a race-replica body with lots of large graphics that must lay over compound curves. Proper trimming and application technique, along with a few tricks, make it easy to tame the toughest decal job. So stick with me (groan) as we dive into the world of decals.

TOOLS TO STICK WITH

You won't need every tool shown here for every decal, but keep 'em handy; you will have used them all by the time the last sticker is stuck.

- Hobby knife with a no. 11 blade
- High-quality scissors
- Hair dryer
- Window cleaner
- Tweezers or fine pliers



The Denso gets a quick coat of white, and then it's ready for decals.

TRIMMING THE DECALS

long as you don't mind a "halo" of clear decal film around the graphic. For a truly professional look, trimming precisely on the line is the way to go. For larger graphics, use a pair of fine-blade scissors to cut the decals out of the sheet. For smaller decals or complex shapes that don't lend themselves to scissors, use a hobby knife. Let the blade do the work, and don't try to cut clear through the backing sheet. If you have to apply pressure to get the blade to cut, change it; a sharp blade is a must. Cut the stickers as close to the edges as possible and avoid leaving any jagged corners; these can snag and pull a sticker off the body after you have applied them.

A good decal job starts with well-trimmed stickers. Most of the Supra's sticker set was pre-cut, and that can save you a lot of time as



If your knife tends to tug at the decals, it's time to replace the blade!



Metal Miniatures in Motion!

*Introducing Miniature Die Cast
Radio-Control Models...only from Testor!*

Grab the hottest ride in town! The first in a new series of 1:32-scale R/C cars from Testor are huge hits everywhere they go. Perfect for home or office, these beauties sport durable, highly detailed die cast bodies, making them incredibly rugged and dependable — and worthy of your display case. But that's not all.

They're also full functioning radio control models — each equipped with authentic pistol grip controls. Currently available

in two versions — a Mini Cooper and an Audi TT — these entry level R/C models are fun for everyone, regardless of age. And their compact design and robust construction make them ideal starter gifts.

You even get detailed molded interior and under-carriages to replace the R/C electronics for a beautiful static model.

So start driving one today! Available at better retailers everywhere.



Watch
for more
models
in 2004!

Great things come in small packages! Like clear headlights, grills, emblems, and working doors. Trade a detailed interior and under-carriage for kit electronics, and you've got a complete display piece!

Mini Cooper (#TES800001)
Also currently available:
Audi TT (#TES800002).



www.testors.com

©2003 The Testors Corp., Rockford, IL 61104 / An RPM Company

MAKING THEM STICK

Applying simple stickers is much easier when you follow a few simple rules.

■ Don't touch the adhesive!

Your fingerprint will show through the sticker (especially on clear sections) and will reduce its adhesion.

■ Don't peel off the entire backing.

Unless a decal is very small, it's best to leave half the decal's backing in place. You can use it as a handle to avoid touching the adhesive, and you'll be able to easily lift the decal off the body if it isn't positioned properly. Once the decal is where you want it, peel off the rest of the backing and rub it down.

■ Don't handle small decals with your fingers. Fuel-tank lids, turn signals and door handles, tiny logos and other small graphics are nearly impossible to place with bare fingers; you'll either touch the adhesive, or your gorilla fingers will make it impossible to see what you're doing, and you'll place the decal crooked. Use a pair of tweezers, clean needle-nose pliers, or the tip of your hobby knife to hold the edge of a sticker instead.



If you leave part of the backing on a decal, you'll find that it's much easier to peel it up and realign it if you need to.

TIPS FOR LARGE GRAPHICS

Large decals can be very difficult to position properly, and they're nearly impossible to peel up and re-stick if you don't get it right on the first try. Here's how to make that first try count:

■ **Wet the body with window cleaner, and place the decal.**

The window cleaner won't hurt the decal or its stick-ability, but it does let you slide the sticker into place easily. Cool, huh? When you have it where you want it, use a paper towel to squeegee out the liquid, working from the center of the decal out. The sticker is stuck!

■ **Use a hair dryer to help the decal stretch and conform.**

Heating the decal will help it stretch if it's falling short and form around curves that might otherwise cause wrinkles. Don't overdo the heating; you don't want to weaken the decal or soften the body.

Window cleaner makes a great "decal lube" for large graphics, and it doesn't harm the graphics' adhesive.



FINAL FIXES Still have wrinkles and bubbles? Here's what to do ...

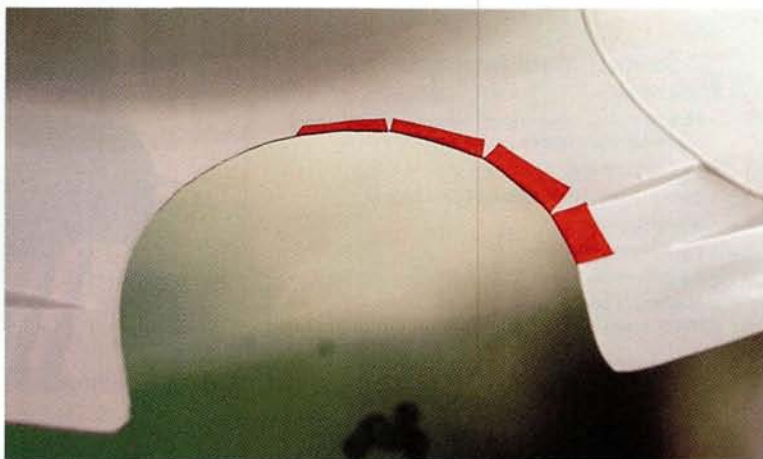
If the decal bunches up along a curve, heat small sections of the sticker with a hair dryer or heat gun. As the sticker warms, it will become more flexible and shrink slightly around curves.



To fix persistent wrinkles, use a hobby knife to make thin relief cuts that allow it to bend and overlap onto itself as it is pressed into place.



If air bubbles are trapped under the decal, make a tiny cut in the center of the bubble to let the trapped air out, then press the decal down working from the edge of the bubble toward the cut.



At the edges of a body, you can trim a sticker flush with the edge, or you can wrap it around for a more realistic look.

Whenever you attempt a complex sticker job, take your time, and don't get frustrated with imperfections. Start with large stickers first and work your way down to small detail stickers; smaller stickers can overlap larger ones and can help conceal flaws. Have fun, and remember: at least you're not getting covered in paint while you dress up your ride! ■

HUDY All-In-One Set-Up Solution

HUDY WAS THE FIRST to bring a professional setup system to the RC market. In simple terms, it's a high-tech alignment rack for measuring and tuning your RC car's suspension. Its original setup system featured CNC-machined acrylic gauges and an extremely flat, light "tweak board."

A few years after Hudy introduced its original setup system, it released this new Exclusive Universal Set-up System. It comes packaged as part of what Hudy calls the "All-In-One Set-up Solution" that includes a carrying case, a tweak board, four setup stands, ride-height and droop gauges. The Tweak Station and carrying case are available only as part of the "All-In-One" set. The new setup stands are high-quality, machined, black-anodized aluminum; this makes it easier to see the gradation marks on the gauges. It all adds up to great quality and precision that's unmatched by any other setup system.

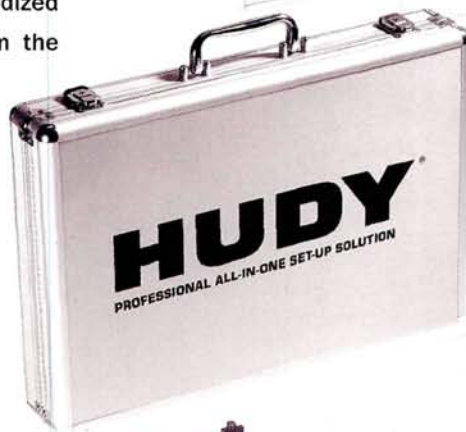
FEATURES

SETUP STANDS. The new Hudy setup system includes many familiar components plus a few new ones. Setup stands attach to each axle in place of the wheels to measure camber and caster. Toe angle can also be measured with the help of the CNC-machined clear acrylic toe/steering angle plate that you install on top of the setup stands. The original system included precision-machined acrylic setup stands, but it was difficult to read the gauges in poor lighting because of its clear acrylic construction. The new setup stands are black-anodized aluminum, and the numbers, scales and edges are machined; the aluminum stands out from the black anodizing, so it is easier to read the gauges. Three ball bearings are installed on each setup stand to provide smooth, friction-free movement so the gauges don't bind and affect the readings.

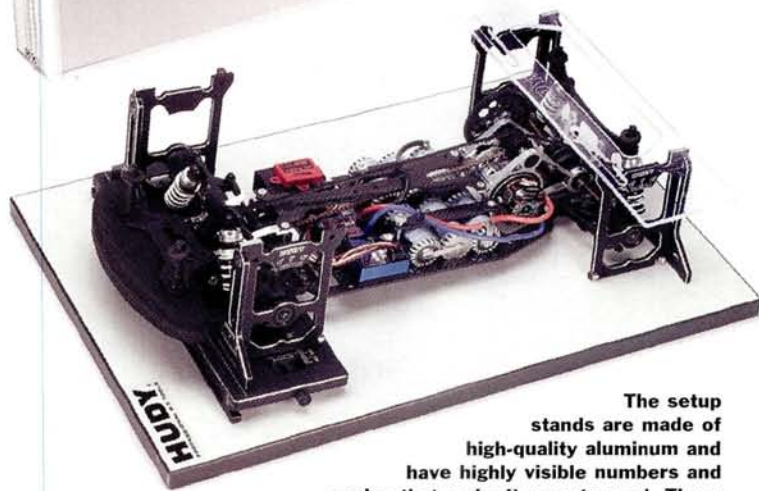
TWEAK BOARD. A setup system is only as good as the surface on which the measurements are taken. A flat surface is very important, and this system includes a perfectly flat, lightweight board. This board includes a plastic setup decal with grid lines for squaring up the car on the board, checking the wheelbase, width and more. The board and decal have slick surfaces, so the car's suspension can settle fully for more accurate readings—a technique similar to that used in alignment racks for real cars.

TOE/STEERING ANGLE PLATE. This CNC-machined acrylic plate is mounted on top of the wheel plates when they're in place. This allows you to measure the front and rear toe angles, and you can check Ackerman by turning the wheels to measure the difference in the angle of the inside and outside wheels; this important information can help you tune your steering response.

RIDE HEIGHT/DROOP GAUGES. Precision-machined aluminum spacer bars used in combination with a droop gauge stepped in 1mm increments tell you how much extension to expect from each corner of the suspension. Placing the spacer bars between the chassis and the



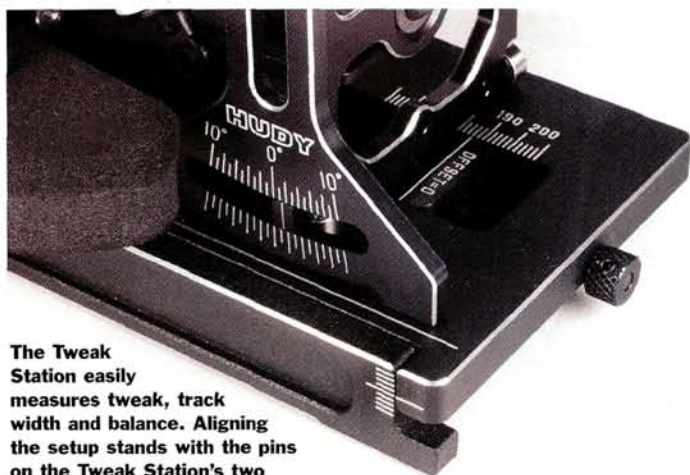
The sharp-looking carrying case and the Tweak Station are exclusive to Hudy's All-In-One Set-Up Solution.



The setup stands are made of high-quality aluminum and have highly visible numbers and scales that make it easy to read. There are three ball bearings on each of the stand's four plates to ensure that the suspension settles properly for the most accurate and consistent measurements.

tweak board helps to reduce the possibility that a screw head (or anything else) will prevent the chassis from sitting perfectly flat. Elevating the chassis also allows the suspension to extend fully.

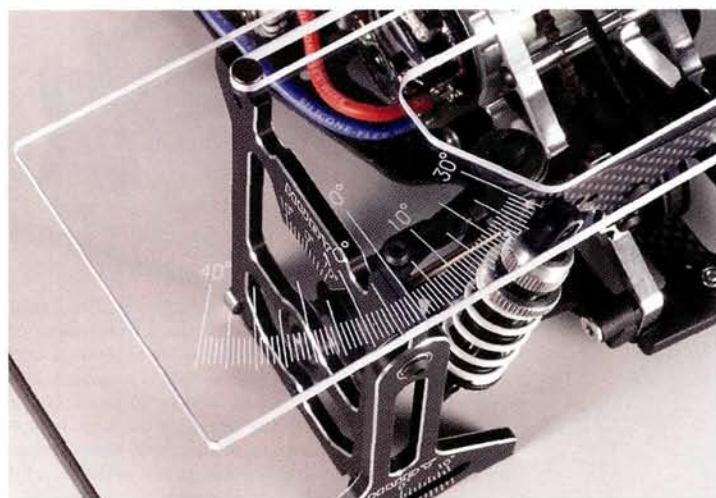
The triangular ride height gauge (it looks like the droop gauge) has a smooth face, and you slide it under the chassis to measure ride height after you've installed the tires and removed the spacer blocks. You can slide this gauge under the chassis to measure front and rear ride height and the clearance on each side.



The Tweak Station easily measures tweak, track width and balance. Aligning the setup stands with the pins on the Tweak Station's two adjustable platforms ensures that the car is perfectly centered and that you'll get the most precise measurement.

SETTING THE SUSPENSION

The precision, accuracy and consistency of the best tool are only as good as its operator. In keeping with the saying "Garbage in; garbage out," if you don't take the time to use a tool properly, you won't get the best results. The tweak board's slippery surface and the ball bearings on the setup stands prevent any binding that might prevent the suspension from settling. After you've installed the setup stands and positioned the car on the tweak board, press down on both shock towers and allow the chassis to rebound on its own. Now you're ready to take measurements and tune the suspension. Each time you make an adjustment, be sure to push the chassis down and let it rebound and settle for the best results.



Clear acrylic toe gauge is placed across the setup stands to measure toe angle and Ackerman.

TWEAK STATION. Typical setup systems (and that includes the first-generation Hudy rig) don't measure tweak or balance. Hudy includes the Professional Tweak Station only as part of the All-In-One Set-Up Solution. A pin in each of its two adjustable platforms in the deck aligns with a hole in the bottom of each setup stand. The platforms are adjusted until the pins are aligned with these holes to measure the track width and to perfectly center the car on the tweak plate. Placing the car even slightly off-center on any tweak plate can throw off your measurements



The system has a stepped droop gauge, a smooth ride-height gauge and a pair of support blocks that hold the car above the tweak board so you can measure and adjust suspension droop.

quite a bit, but this feature eliminates that problem. You can adjust the distance between the pins to accommodate cars with track widths between 148 and 208mm.

TESTING

Although a setup system can look a little intimidating, the only thing you need to do is remove your wheels and tires and replace them with the setup stands. It takes about a minute to mount the setup system. Once it's installed, you can measure just about any aspect of the suspension geometry. The new setup stand is as easy to use as the first-generation system, and it offers a way to check caster angle, chassis tweak and track width; the new gauges are also much sharper-looking and easier to read. My only gripe is that the long, vertical plate at the front of the Tweak Station has a crinkle finish. In spite of the ball bearings that are installed underneath the Tweak Station's large, flat plate, the crinkle finish on the vertical plate doesn't allow the Tweak Station to operate as smoothly as possible, but I found that removing the outermost bearings on the underside of the tweak plate makes everything move more smoothly. Hudy says that a little resistance is intentional, but my preference is to allow the tweak station to move a little more freely.

VERDICT

We thought that Hudy offered the ultimate setup with its previous system, but the All-In-One Set-Up Solution not only offers an incredibly complete package, but it also sets a new standard for precision when you dial in your touring car. Even if there's slop in the suspension, the Hudy system allows it to move freely enough to settle at virtually the same point every time. This provides a base from which you can make changes and take measurements. A simple camber gauge and "good eyeballing" just can't compete. You won't recognize this until you check your car on the stand after you've made what you think is a good "eyeball" setup. You simply can't beat the precision and consistency of the Hudy Universal Set-Up System.

This stand includes the most comprehensive instructions on how to use the gauges and also provides a lot of insight into what you're checking and how adjustments affect performance. The people at Hudy and some of their top-level team drivers assembled this information. The list of Hudy drivers is like a who's who of top drivers, so the source of the info is solid.

All this doesn't come cheap, but the system's superior quality and precision are obvious. So if you're a racer who appreciates top-quality precision tools that make a genuine difference, this should be high on your list of must-haves.

Hudy Products; distributed by Hudy USA, contact RC America (800) 519-7221; hudy.net.

JR RACING XS3 Pro

JR RACING WAS THE FIRST MANUFACTURER TO RELEASE A FULLY SYNTHESIZED TRANSMITTER and receiver combo with 2003's breakthrough XS3. (For the record, Hitec's Spectra was the first synthesizing transmitter module, and Novak's XXtra was the first synthesizing receiver, but JR was first to produce a complete system.) Along with synthesized frequency selection, the XS3 packed in all the features of JR's XR3i FM system—basically, every adjustment a racer needs and then some, plus 3 channels for the monster truck guys. Now JR has upgraded the XS3 with the "Pro" model, which improves on the original formula with an adjustable trigger hook, removable neoprene grip pad, Momo-style wheel, 10-model memory (the standard XS3 stores 6), and a new, smaller RS310 receiver.



FEATURES

- Includes Z270 standard-type and Z590M metal-gear servos
- FM modulation with 3 channels
- Linear travel or two-position auxiliary channel modes
- Synthesized transmitter and receiver channel selection—no crystals
- 10-model memory with 3-character model-name entry
- Assignable electronic grip levers and grip button
- Direct-display trim functions. The display automatically shows you the setting for the trim lever you are using
- 50-lap timer
- Low-battery alarm
- Adjustable trigger hoop
- Fast and normal frame-rate operation

TUNING ADJUSTMENTS

- Wheel tension
- Throttle deadband
- Steering dual-rate
- Steering and throttle exponential
- Steering and throttle endpoints
- Steering and throttle subtrim
- Steering-to-auxiliary and throttle-to-auxiliary channel mixing

TESTING

I've had lots of wheel time with the original XS3, and it has proven to be as reliable as a hammer, comfortable to hold and easy to program. Suffice it to say, the Pro works just as well as the standard model in terms of navigating and adjusting its functions. The Pro's new features are all about "feel." The first thing you'll notice is the neoprene grip pad that fattens up the grip considerably and has a more cushioning effect. If you're a death-grip guy, you'll like it; if you don't like it, no problem: just tug open the Velcro seam and you're back to the standard XS3 grip. The other big "feel" item is the trigger, which now has an adjustable brake hook. You can slide the hoop right down onto your fingertip, so there's no artificial "deadband" created by empty space between the hoop and your finger. I never really noticed this until I snugged up the Pro's trigger, and now I'm spoiled.

Style-wise, the XS3 Pro scores points with its can't-miss-it silver finish, black antenna and Momo-style wheel, which looks great but has a thick rim that you may be able to feel as you drive.

Maybe that doesn't bother you, but it bugs me, so I slid the wheel's foam pad up the rim until it was flush with the wheel's face, and that eliminated the rim rub.

The XS3 Pro is simply a great radio system. The convenience of synthesized frequency selection cannot be overstated; it's really a must-have feature, and JR does it right. Ease of use and ergonomics count, too, and the Pro is easy to program (you won't need

MANUFACTURER'S SPECS

XS3 PRO TRANSMITTER

Channels 3
Modulation FM
Weight w/alkaline cells 23.4 oz.
Model memory 10
Signal strength 130mV

RS310 RECEIVER

Channels 3
Modulation FM
Dimensions 1.49x1.14x0.63 in.
Weight 0.63 oz.
Sensitivity 5V/m
Antenna length 20 in.

SERVO SPECS

Torque (@ 6 volts)
Speed (@ 6 volts)
Dimensions
Weight
Motor type
Gears

Z270

49 oz.-in.
0.19 sec./60 deg.
0.73x1.51x1.37 in.
1.5 oz.
3-pole ferrite
Nylon

Z590M

85 oz.-in.
0.15 sec./60 deg.
0.73x1.55x1.46 in.
1.6 oz.
3-pole ferrite
Metal

the manual after the first run-through) and has a well-placed wheel and grip buttons. If you have a manual-shift reverse system or second gear, the grip switch is ready for you. The Pro is also a good value at \$250, particularly when you factor in the included servos, which are good for most types of 1/10-scale racing. The standard XS3 is probably the best value at \$200, but I have a feeling that the XS3 Pro will be the big seller: it looks hot, the smaller receiver is a bonus, and hardcore racers will appreciate the adjustable trigger and extra model memory. —Peter Vieira

JR Racing XS3 Pro w/Z270 and Z590M servos—item no. JRP337275; \$250.

XS3 PRO VS XS3

The XS3 Pro and the standard XS3 have almost the same features; this chart shows only the differences.

	XS3 Pro	XS3
Case finish	Silver	Black
Wheel	Momo-style	Standard XS3
Brake hook	Adjustable	Fixed
Antenna	Black	Chrome
Model memory	10	6
Receiver dimensions	1.5x1.1x0.6 in.	1.8x1.3x0.6 in.
Receiver weight	17.6g	24.6g
Receiver BEC	No	Yes

BEC-FREE

If you're wondering how the JR techs managed to shrink the RS300 receiver down to the new 310 size, the answer is easy: they took out the battery eliminator circuit, better known as "BEC." Does it matter? Not with today's gear. The earliest RC car kits designed to use 7.2V packs required you to use a separate 4-cell battery to power the radio gear. That was because the receivers could handle only 6 volts—a 7.2V pack would smoke the receiver. The BEC was invented to eliminate the need for the extra battery. The first BECs were plugged in-line between the receiver and the mechanical speed control, but BEC circuitry is now built into the receiver, if it's used at all. Since nitro cars carry 6V receiver packs, they don't need a BEC. And since modern speed controls send only 6 volts to the receiver, electric cars don't need a BEC in their receivers either. Unless you plug the RS310 receiver into a car with a mechanical speed control, you'll never have a problem.



JR Racing; distributed by Horizon Hobby (217) 355-9511; horizonhobby.com ■

1/5 Scale Nitro Power SF501 by Nuova Faor

*Also Available in Electric

The SF501 is so much fun and has so many features we couldn't even begin to describe them here. Made of almost 100% CNC Machined Aluminum and Ergal and with a LEXAN Body and Driver, you'll have it FOREVER. It is so Beautiful some folks just put it up on the Mantle. If your a speed freak, it doesn't get better than this.

Designed for **SPEED**, **DURABILITY** and lots of **FUN** !

Now available in Almost Ready to Run Version !

Imported by **Internet-RC Radio Control**
Contact your local hobby shop or visit our website www.Internet-RC.com where you can see a Video and the RC Car Action review or call us at (602)347-1600 for additional information and pricing.



Now Includes a SIRIO .12 Engine !



SF501 * U.S. Patent Pending
SF501 Shown with some optional items

XXX main

TRUCK BODIES

LOVE IT~ HATE IT~ EAT IT~
WELCOME TO THE NEXT LEVEL IN SICK
BODY MOLDING FOR YOUR MONSTER
TRUCK... XXX MAIN BODIES COME
COMPLETE WITH DECALS~ WINDOW
AND FLAME PAINT MASKS~ PROTECTIVE
OVERSPRAY FILM~ AND A FULL LENGTH
HOW-TO-PAINT DVD WITH TIPS ON
PREPPING~ MOUNTING~ AND PAINTING
4 DIFFERENT PAINT SCHEMES PLUS
TONS OF BONUS EXTREME RC ACTION
FOOTAGE... ALL THIS AND THE BODIES
STILL RETAIL FOR ABOUT \$30~



SIC DUTY MONSTER TRUCK BODY

PART # P001
RETAIL \$29.99



SKULLATOR MONSTER TRUCK BODY

PART # P002
RETAIL \$30.99



Airtronics (714) 978-1895; airtronics.net.

Collari Engines distributed exclusively by Werks Racing (408) 365-1000; werksracing.com.

DuraTrax distributed by Great Planes; duratrax.com.

Dynamite distributed by Horizon Hobby; dynamiterc.com.

Epic distributed by Trinity Products Inc. (732) 635-1600; teamtrinity.com.

Futaba distributed exclusively by Great Planes; futaba-rc.com.

Global Hobby Distributors (714) 964-0827; globalhobby.com.

GM Racing distributed by Horizon Hobby; gm-racing.com.

Great Planes Model Distributors Co. (217) 398-6300; (800) 682-8948; greatplanes.com.

GS Racing distributed exclusively by General Silicones Group Inc. (626) 338-3815; gsracing.com.

Hitec RCD Inc. (858) 748-6948; hitecrd.com.

Horizon Hobby (217) 355-9511; horizonhobby.com.

HPI Racing (949) 753-1099; hpiracing.com.

Hudy distributed exclusively by RC America (214) 744-2400; rcamerica.com.

JR Racing distributed by Horizon Hobby.

KO Propo USA Inc. (310) 532-9355; kopropo.com.

Kyosho distributed by Great Planes; kyosho.com.

LRP distributed by Team Associated (714) 850-9342; teamassociated.com.

Mtroniks distributed by Global Hobby Distributors.

Novak Electronics Inc. (949) 833-8873; teamnovak.com.

OFNA Racing (949) 586-2910; ofna.com.

O.S. Engines distributed by Great Planes; osengines.com.

Pro-Line (909) 849-9781; pro-lineracing.com.

Protoform Inc. distributed by Pro-Line.

RC Guy (250) 723-0704; rcguy.com.

Schumacher USA (813) 889-9691; racing-cars.com.

Tamiya America Inc. (800) 826-4922; tamiyausa.com.

Team Losi; distributed by Horizon Hobby; teamlosi.com.

Thunder Tech Racing (815) 467-0621; thundertechracing.com.

Traxxas Corp. (972) 265-8000; traxxas.com.

Trinity Products Inc. (732) 635-1600; teamtrinity.com.

XTM Racing distributed by Global Hobby Distributors; xtn.globalhobby.com.

Zegers R/C Graffixx (561) 988-5411; zegersrcgraffixx.com.



BUILT TO BASH

Yes...R/C Raven can make your truck look good enough to just sit it on a shelf. But doesn't that defeat the purpose of upgrading it in the first place? Besides, we don't manufacture our products from high grade materials just so they "look pretty". These hop-ups are designed to help your vehicle withstand the abuse that backyard bashing and extreme racing can dish out.

Log onto www.rcraven.com to see our entire product line that includes upgrades for the Savage, T & E-Maxxes, and more.

R/C RAVEN

800-308-0055 fax 559-291-7011 Dealer Inquiries Welcome

NEW SAVAGE FULL ROLL CAGE and Triple Rate Springs

www.rcraven.com

Ace Hardware Hobbies
204, 205, 206
acehardwarehobbies.com

Ace Hobby Distributors
Inc. 114, 115
acehobby.com

Acer Racing 91
acerracing.com

Airtronics 257
airtronics.net

American CNC Machining
250
acncm.com

Art's Hobby 229
arts-hobby.com

Bruckner Hobbies 268
brucknerhobbies.com

Byron Originals 212
byronfuels.com

Castle Creations 261
castlecreations.com

CEN/Genka Trading Corp.
66, 67
cenracing.com

CheapBatteryPacks.com
269

Custom Works 263
customworksrc.com

Du-Bro Racing 259
dubro.com

DuraTrax 45, 93, 111,
177
duratrax.com

Dynamite 149
dynamiterc.com

Extreme Standz 277
extremestandz.com

Fantom Racing 231
fantomracing.com

FHS/Red Max Fuels 267
members.aol.com/fhsoil

First Hobby 277
firsthobby.com

Fusion Batteries 178,
179
fusionbatteries.com

Fusion Motorsports 213
fusionmotorsports.com

Futaba 125
futaba-rc.com

General Silicones Group
183, 211
gsracing.com

Golden Horizons 244
ghhobby.com

Gorilla Maxx 267
gorillamaxx.com

Hitec/RCD Inc. 47, 207
hitecrd.com

Hobby People 196, 197,
198, 199
hobbypeople.net

HobbyZone 226
hobbyzonesports.com

HPI Racing 30, 56, 57,
72, 73, 74, 75, 76, 77,
116, 117, 154, 155,
166, 167
hpiracing.com

Integy Inc. 64, 65
integy.com

Internet RC 260
internet-rc.com

JR Products 203
jrradios.com

Kyosho 36, 37
kyosho.com

Magma Intl. Ltd. 271
magmarc.com

Megatech 249, 267
megatech.com

Model Electric Systems
275

Model Rectifier Corp.
(MRC) 17
modelrectifier.com

Mtronics 113
globalhobby.com

Mugen-Selki 232, 233
mugenracing.com

New Era Models 242
neweramodells.com

NitroHouse.com 230

Novak Electronics 25, 53
teamnovak.com

NYC Hobbies 270
nychobbies.com

O.S. Engines 135
osengines.com

OFNA Racing 58, 59, 61,
63, 82, 83, 104, 105,
138, 139, 152, 153,
160, 161, 176, 194,
195, 214, 215
ofna.com

Omni Models 151
omnimodells.com

Panther Products 277
panther-rc.com

Parma/PSE 101
parmapse.com

Peak Racing Products
123
peakmotors.com

Performance Devices Inc.
270
performancedevices.com

Power Racing Products
164, 165
powerracingrc.com

Precision Performance
270
yourparts4less.com

Pro-Line USA C3, 6, 7, 8,
9, 280, 282
prolineracing.com

ProMax 237
promax.globalhobby.com

RAm-Radio Controlled
Models Inc. 277
radiocontrolledmodels.com

RB Innovations 249
rbinnovations.com

RC Car Action Buyers'
Guide 262
rcstore.com

RC Hub 271
rchub.com

RC Raven 276
rcraven.com

RC Solutions 251
rc-solutions.com

RCStore.com 272, 273

RCX 2005 264, 265
rcx.com

RD Logics 253
rdlogics.com

Robinson Racing
Products 68, 69, 70, 71
robinsonracing.com

RPM 193
rpmrcproducts.com

Spiker Racing 234
spikerracing.com

SportWerks 20, 21
sportwerksrc.com

Stormer Hobbies 222,
223, 224, 225
stormerhobbies.com

Sullivan Products 275
sullivanproducts.com

Tamiya America Inc. 14,
15, 48, 49, 84, 85, 266
tamiyausa.com

Team Associated 12, 13,
22, 23, 34, 35, 50, 51,
54, 55, 126, 127, 133
teamassociated.com

Team Associated: Inside
Associated's Winning RC
Cars & Trucks 252
rcstore.com

Team Losi 94, 95
teamlosi.com

Team Orion 29, 31, 33,
41, 156, 247
teamorion.com

Tekin Inc. 239
teamtekin.com

Tempgun.com 269

Testor 246
testors.com

Tower Hobbies 184, 185,
186, 187, 188, 189
towerhobbies.com

Traxxas Corp. 19, 136,
137, 174, 175
traxxas.com

Trinity Products Inc. C2,
C4, 3, 4, 5, 10, 11,
26, 27, 28, 38, 42, 43,
103, 147
teamtrinity.com

Ultimate Hobbies 240,
241
ultimatehobbies.com

Unlimited Engineering
Inc. 270
unlimitedengineering.com

Vantage Racing 243
vantageracing.com

Varad 182
rcneon.com

Venom Racing 278
venom-racing.com

Werks Racing 140, 141
werksracing.com

XRAY 158
teamxray.com

XTM 32, 173, 221
xtm.globalhobby.com

XXX-Main Racing Inc.
254, 274
xxxmain.com

Yokomo Ltd. 216, 217
yokomousa.com

This advertiser index is
provided as a service to
our readers. Air Age is
not responsible for errors
in or omissions of names
or page numbers.

RADIO CONTROL CAR ACTION (USPS 001-087; ISSN 0886-1609) is published monthly by Air Age, Inc., 100 East Ridge, Ridgefield, CT 06877-4606 USA. Copyright 2004, all rights reserved. Periodicals postage permit paid at Ridgefield, CT and additional offices. Canadian Post Publications Mail Agreement No. 40008153.

SUBSCRIPTIONS AND BACK ISSUES: U.S., call (800) 877-5169; Canada and elsewhere, call (386) 246-3323; fax (386) 447-2321, or go to our website www.rccaraction.com. U.S., \$27.95 (1 yr); Canada \$39.95 including GST (1 yr); elsewhere \$70.95 (1 yr). All international orders must be prepaid in U.S. Funds; Visa, MC, Discover, and AmEx accepted.

EDITORIAL: Send correspondence to Editors, *Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. Email: rcca@airage.com. We welcome all editorial submissions, but assume no responsibility for loss/damage of unsolicited material. To authors, photographers and people featured in this magazine: all materials published in *Radio Control Car Action* become the exclusive property of Air Age Publishing, Inc. unless prior arrangement is made in writing with the Publisher.

ADVERTISING: Send advertising materials to Advertising Dept., *Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA; phone (203) 431-9000; fax (203) 431-3000; email sales@airage.com

CHANGE OF ADDRESS: To make sure you don't miss any issues, send your new address to *Radio Control Car Action*, P.O. Box 420235, Palm Coast, FL 32142-0235 USA, six weeks before you move. Please include address label from a recent issue, or print the information exactly as shown on the label. For faster service, go to our website www.rccaraction.com and click on the customer service link.

POSTMASTER: Send Form 3579 to *Radio Control Car Action*, P.O. Box 420235, Palm Coast, FL 32142-0235 USA.

customer service

For fast service, go to: www.rccaraction.com and select "Customer Service"

All of the following services are available online!

- **Subscribe**
- **Change your address**
- **Report missing or damaged issues**
- **Make payments**
- **Check your account status**
- **Renew your subscription**

Address changes

Please allow 4-6 weeks for address changes to be processed. To change your address by mail, send a copy of your current label and your new address information to:

RC Car Action
P.O. Box 420235
Palm Coast, FL 32142-0235 USA

You can also contact us at
rccaraction@palmcoastd.com,
(386) 246-3323, fax (386) 447-2321.
For faster service, go online.

How to read your label:

#BXNBNMG *****AUTO** 3-DIGIT 068
#12345ABC123AB12C#70411 AUG 05

|||||

Your account number is 12345ABC123AB12C.

Your expiration date issue is August 2005.

Our cancellation policy

All cancellations must be requested in writing. You may send your request via mail, email, or fax.

Our renewal policy

We will send you a renewal notice 4 months prior to your subscription's expiration date. For faster service, renew online at

www.rccaraction.com

RADIO CONTROL
Car Action

CONTACT THE BACKLOT Email backlot@airage.com, or write to Backlot, c/o RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA.

CAR-AND-SAVE Fun FOR EVERYONE!

[or at least some people]

I.O.U.

Sorry bro, they called my qualifier and I couldn't find my body clips. Looks like I owe you ☐ body clips.

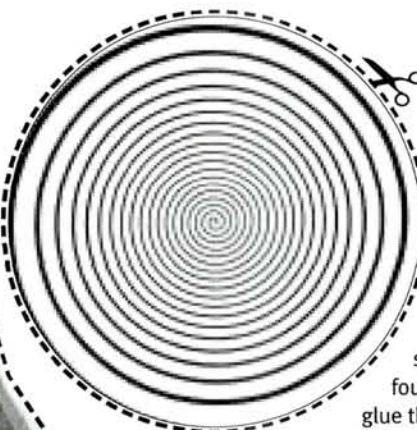
P.S. I also took your ☐

I.O.U.

Need body clips but feel guilty about stealing them? Clip out this handy I.O.U. and just leave it in your buddy's pit box.

You know you want to glue these mug shots of Kevin into your car's windows. Do it.

"HEY, KEVIN'S DRIVING MY CAR!"



HYPNO WHEEL DISCS!

Photocopy this page so you have four discs, then glue them to your dish wheels for hypnotic

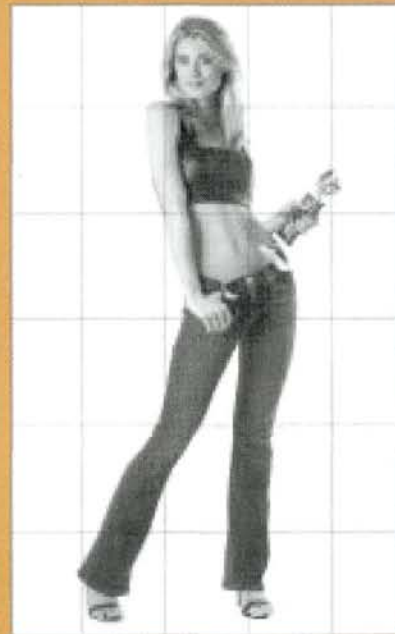
action. Plant a post-hypnotic suggestion so that all the drivers feel an irresistible need to pee when they hear the start tone, then drive yourself to an easy victory!

TIME TO LOSE!

PERSONAL TROPHY GIRL!

That's right, your own personal trophy hottie! Putting her together is easy:

1. Enlarge this image 1,000%. (You'll have to do it in stages.)
2. Get a big piece of foam-core and glue all the pieces to it puzzle-style.
4. Cut her out.
5. Prop her up with a stick. There you have it: a totally realistic trophy girl.



RC DRIVER'S LICENSE

Paste your own picture in there, cut it out, then laminate the whole thing and stick it in your wallet. Forget about it for a few months, then accidentally give it to the cop next time you get pulled over. Hilarity will ensue.

Radio Control



DRIVER'S LICENSE 119198125165

CLASS: RC VEHICLES ONLY

Sex: Uh, OK Eyes: Yes Height: 27 Flarbins

Jass, Hugh
100 East Ridge
Ridgefield, CT

DOB: 02-10-41



HILARIOUS FAKE WATCH!

Cut it out, strap it on, and then say to the guy next to you at on the drivers' stand, "Hey; look what time it is."